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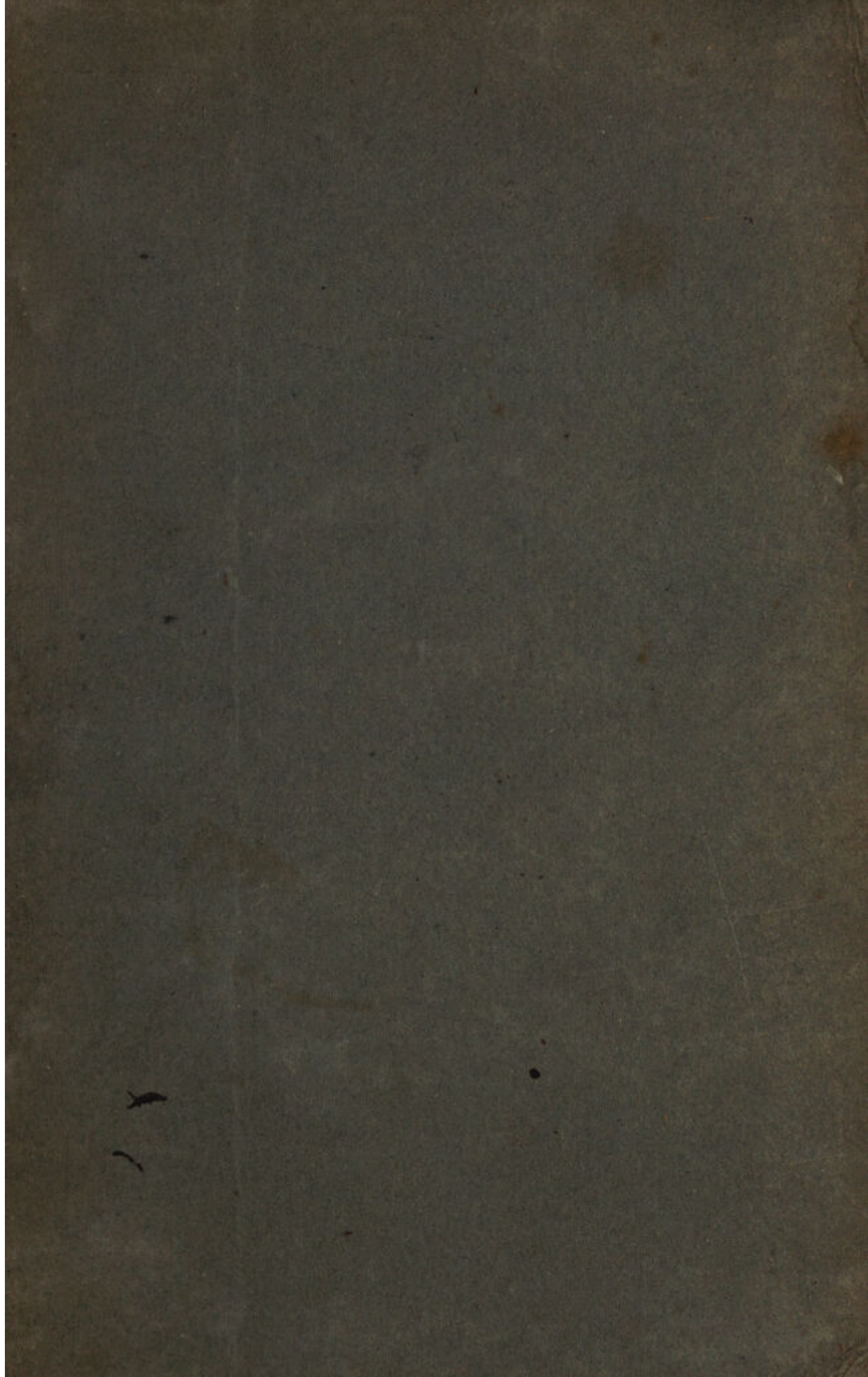
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AN ESSAY
ON
DISEASED JOINTS,
AND THE
NON-UNION OF FRACTURE.

"There is more real merit in removing the necessity for the practice of any one severe operation, already familiarly adopted, than in the invention and performance of a hundred new ones."

Cooper's First Lines of Surgery, 1826.

AN ESSAY
ON A
NEW MODE OF TREATMENT
FOR
DISEASED JOINTS,
AND THE
NON-UNION OF FRACTURE;

WITH CASES AND FORMULÆ OF THE VARIOUS PREPARATIONS USED.

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Royal Medical Society of Edinburgh, &c. &c.

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And Surgeon to the Hull Dispensary for Diseases of the Eye and the Ear.

LONDON:

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1828.

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TO THE
MEMBERS

OF THE
ROYAL MEDICAL SOCIETY

OF EDINBURGH,

THIS ESSAY

IS MOST RESPECTFULLY

INSCRIBED.

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INTRODUCTION.

The publication of an Essay on the treatment of Diseased Joints, may, perhaps, be deemed superfluous; especially, when so many excellent works on the subject have been recently published. But if it be taken into consideration, the variety of the modes of treatment recommended, and also, that even the most celebrated authors who have written on the subject, declare the impossibility of curing diseases of the hip or knee-joint, when advanced beyond a certain stage, by any mode hitherto known; it becomes then an imperious duty in every practitioner, to communicate to the public such modes of treatment, which have, under his care, effected a cure, in

the advanced stages of any of these diseases. Several years ago, my attention was attracted to the extraordinary effects of the external application of the Tincture of Iodine, in the case of a patient whom I visited in the country. He had been attended in succession by two of the most eminent physicians in this town, along with the family surgeon. One of the physicians asserted that the disease was in the kidney, while the other as positively insisted on its being in the liver. Each of these gentlemen, in rotation, treated the case according to his own ideas of the seat of disease, and the indication of cure; without in any degree ameliorating the distressing situation of the patient, whose decease was daily expected. Such was the account I received when I saw him for the first time, being then attended by the family surgeon, the physicians having declared the case hopeless.

The whole of the right hypochondric region was enormously enlarged, so that when the patient lay on his left side, the parts projected

similar to that of the abdomen of a woman in the fourth month of pregnancy. From the appearance of the parts I was of the opinion that both the liver and kidney were diseased; particularly the latter.

A singular circumstance was, that the patient had agreed for me to be sent for to receive instructions to inspect his body after death. I had however brought with me a small bottleful of the tincture of iodine, diluted with aqua calcis, and with the consent of the surgeon, and as a forlorn hope, applied it over all the parts diseased with a camel hair brush, to the extent of nearly half an ounce of this mixture, and left directions for this quantity to be applied in the same manner once every day. By following this mode of treatment, the patient was in a few weeks completely restored, and is at present pursuing all the laborious duties incident to the operative agriculturist, with ease to himself and advantage to his family. Encouraged by this almost unexpected cure, I began to apply the

tincture externally to almost every case which resisted the ordinary routine of practice, and the result has been the production of the following pages.

As the incipient and acute stages are the periods of disease most favourable to the administration of any medicine, so the symptoms descriptive of these stages, ought to be described so accurately as to be easily recognized by the young practitioner.

In the early part of this work I have endeavoured to give the most correct, and at the same time, concise diagnostic symptoms of the disease of the hip-joint as they occur progressively in the incipient, acute, and chronic stages. I have also selected, in corroboration of these symptoms, passages from the most celebrated authors who have written on the subject.

The cases are, perhaps, rather few in number to that which might have been given, because I

did not choose to crowd the work with repertory statements merely for the purpose of swelling its pages.

In the history of the case of diseased hip-joint, the superior efficacy of the mode of treatment recommended in this treatise, is fully illustrated; and at a period when even partial destruction of the head of the os femoris, and disorganization of the parts had taken place. The cure no doubt was tedious, but ultimately successful. But no patient which I have treated, recovered so rapidly as that of Case VIII. with diseased knee-joint; it exceeded my most sanguine expectation. I have also had the pleasure of witnessing the salutary effects of this mode of treatment in several cases of inflammation of the mammæ, in addition to those mentioned in this work. There are likewise several cases given, to show the discutient powers of the external application in bubo, and its stimulating effects in gangrene.

As the non-union of fracture has engaged the attention of almost every scientific practitioner,

and as this disease is frequently attendant on patients of a scrophulous diathesis, so it is therefore hoped, that the history of a case of forty-six weeks standing, successfully treated, after other modes failed, will be favourably received by the profession.

Since this work went to the press, I have seen several notices in Dr. Johnson's valuable Journal respecting Endermic Medication, and on this subject the editor remarks, "In spite of all the controversies which have taken place respecting the existence of a capability in the vessels of the skin to absorb substances applied to them, the general conviction, supported now by incontestible facts, is, that such absorbent power does really exist, especially when the epidermis is removed. The method of introducing medicinal agents through this channel is by no means a mere matter of physiological curiosity. It may be turned to great advantage in many cases, where there are strong objections to the administration of medicines by the mouth."

Dr. Manson, with laudable zeal, has prosecuted the administration of iodine beyond that of any practitioner in Britain, and with a degree of success which must be very flattering to the unre-mitted attention which he has paid to the administration of this medicine in various complaints. But however excellent this mode of practice may be, still there are numerous cases which occur, with great pain and irritability, in the treatment of which, the administration of iodine in the form of liniments or ointments is at variance with the indication of cure. In all cases of this description, the external application of the tincture of iodine will be found of the greatest advantage.

I am aware that it has been asserted, "While the specific or scrophulous action is going on in the joint, that there is no local treatment that can have any positive influence in removing it." It ought, however, to be remarked, that this is only the opinion of an author whose opportunities of observation may, perhaps, have been limited ; but even although it were the opinion of

the most celebrated of the profession, yet, no assertion or opinion can invalidate facts.

But supposing for a moment, that the mode recommended in this Essay should only save one half of the patients submitted to its treatment, it must however be infinitely preferable to that of amputation in cases of the hip-joint, where although the patient may survive the operation, is yet so disabled and mutilated, that humanity shudders at the appearance of the unfortunate sufferer.

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ON THE TREATMENT
OF
DISEASED JOINTS.

THERE are perhaps few parts of the human frame so liable to disease in delicate persons, or of more consequence to the individual, than the articulations of the upper and lower extremities. On the healthy state of those of the fingers depends the degree of perfection of the fine arts, as well as of the mechanical employments ; while at the same time, the Joints of the lower extremities procure us the means of health and loco-motion. Hence the importance of flexibility in the large Joints as well as in the smaller articulations : the mind may devise, but it is only by means of the articulations that we can execute.

Their importance in the animal economy, and the formidable diseases to which they are incident, have naturally attracted the attention of the most eminent in the profession. The history of all the various modes of treatment which have been proposed by modern practitioners, in order to cure, or at least to alleviate inflammation in the Joints and its sequelæ, would no doubt afford ample scope for critical analysis. But as the greater number of these modes are, perhaps, more a matter of speculative investigation than of practical utility, I shall, therefore, confine myself to a brief summary of the opinions of a few of the most celebrated authors who have written on the subject.

HUNTER, has proposed cicuta and sea bathing.

RUSSELL.—Astringents, mineral and vegetable; decoctions of oak bark, with alum.*

CRUTWELL.—Compression by means of bandage.†

* Morbid Affections of the Knee.—Edinburgh, 1802.

† See Dictionary of Practical Surgery, page 765.—London, 1825.

FORD.—*Acute Stage.* Warm bath, leeches, blisters, gum plasters, caustic issues, seton. *Chronic Stage.* When abscess has formed, no artificial opening to be made by instruments; nutritive diet, attention to air and clothing.*

WILSON.—*Acute Stage.* Quietude in the horizontal position, venesection, leeches, cupping, warm bath. *Chronic Stage.* Blisters, repeated and perpetual, setons, caustic issues behind the trochanter major, or in the groin, stimulating liniments.†

LLOYD.—*Acute Stage.* Quietude in the horizontal position, support by splints or sling, leeches, cupping, poultices, issues, setons, blisters, puncture the abscess when formed. *Chronic Stage.* Tartar emetic ointment, compression by plaster, blue pill and sarsaparilla, aperients, cinchona, steel and mineral acids.‡

* Observations on the Disease of the Hip-Joint.—London, 1810.

† Lectures on the Structure and Physiology of the Skeleton, and on the Diseases of the Bones and Joints.—London, 1820.

‡ A Treatise on the Nature and Treatment of Scrophula.—London, 1821.

LATTA.—Alternate blisters, afterwards ammoniated liniments.*

BRODIE.—*Acute Stage.* Quietude in the horizontal position, support by splint or sling, antiphlogistic regimen, sarsaparilla, opium, colchicum autumnale, leeches, fomentation, saline draughts, diaphoretics and poultices. *Chronic Stage.* Venesection, leeches, blisters, liniments, camphorated mercurial ointments, lotions, issues, warm bath, preparations of steel, vegetable tonics, mineral acids, application of soap cerate, adhesive plaster, rhubarb and mercurial purgatives, sea-coast; on failure of which, amputation when practicable.†

S. COOPER.—*Acute Stage.* Quietude in the horizontal position, fomentation, emollient poultices, lotions, antiphlogistic regimen, saline purgatives, local and general bleeding by cupping or leeches. *Chronic Stage.* Friction, blisters, caustic issues, compression with adhesive

* System of Surgery.

† Pathological and Surgical Observations on Diseases of the Joints, 8vo, plates.—London, 1825.

plaster, ointment of iodine. *Internal remedies* ; iodine, sulphate of quinine, opium : on failure of which, amputation when practicable.*

MANSON.—*Externally*, iodic ointment ; *internally*, tincture of iodine.†

As the publications of Cooper and Brodie comprehend all that is excellent in the practice of the other practitioners, I shall, therefore, present the reader with the following short analysis of the practice of these two gentlemen in diseases of the Joints.

Mr. Brodie, in his treatise, has, with pathological discrimination, ascertained the various species of disease to which the Joints are liable ;

* Dictionary of Practical Surgery.—London, 1825.

† Medical Researches on the effects of Iodine in Scrophula, &c.

London, 1825.

In a recent publication by Mr. Scott, a mode of treatment is prescribed, which (in addition to general practice) consists in mechanical support and the local application of mercury.

Surgical Observations on the treatment of Chronic Inflammation in various Structures, particularly as exemplified in the Joints.—London, 1828.

and this work, in the opinion of the most celebrated surgical author of the age,† is “The most scientific book ever published on the subject.”

Mr. S. Cooper, in his valuable work, Dictionary of Practical Surgery, article *Joints*, has concentrated the opinions of all the modern practitioners on the subject, and enriched the whole with his own observations on the peculiar merit and utility of each mode of treatment recommended.

The works of these gentlemen ought to be in the possession of every surgeon who wishes to improve in the healing art; and, as they may, perhaps, be in that of the reader, it would be superfluous in me to recapitulate the whole of their observations, especially, as the following pages are chiefly designed to illustrate and recommend a new mode of treatment, and to compare the result of their observations with my own.

† Samuel Cooper, Esq. Surgeon to the Forces; author of the Dictionary of Practical Surgery, &c.

In the treatment of the inflammation of the synovial membrane of the Joints, Mr. Brodie has advised the abstraction of blood locally, by means of leeches or cupping, followed by blisters, lotions and liniments, with friction, in order to promote resolution and restore flexibility to the parts. But it happens unfortunately both to the practitioner and patient, that in the greater number of cases of inflammation of the synovial membranes, the disease is neglected in its commencement,* (unless in patients of the middle and higher ranks) until ulceration has taken place, which, as Mr. Brodie justly observes, "deranges the nervous system, and ultimately destroys the functions of the whole animal machine."†

When a morbid change of structure has taken place, he acknowledges that he knows of no instance of its being restored; and, after mentioning the palliative modes of treatment, such as cold

* "Disease in the hip-joint has generally made some progress before the aid of the Surgeon is required."

Wilson on the Joints, page 380.

† Pathological and Surgical Observations, page 35.

lotions, fomentations and poultices, with rest, adds: "But no method with which I am acquainted, is capable of doing more than somewhat checking the progress, and somewhat relieving the symptoms of the complaint. In every case in which I have had an opportunity of seeing the termination, the ulceration of the cartilage, the formation of abscess in the cavity of the joint, and the consequent disturbance of the patient's general health, have *ultimately* rendered amputation of the limb necessary, in order to preserve the patient's life."*

How deplorable the situation of a patient, if the disease be situated in the hip-joint! amputation, with any hope of successful termination, is then impossible.†

* Pathological and Surgical Observations, page 108.

† "But the carious hip-joint admits of no such remedy; the hardest and most enterprising surgeon, who has ever attempted the removal of the whole lower extremity, by amputating at the hip-joint, never aimed at more than taking away the diseased head of the thigh bone, considering the portions of carious bone remaining, to be finally thrown off by a process of nature." page 113.

Observations on the Disease of the Hip-Joint, by Edward Ford, F.R.S.

In the treatment of ulceration of the articular cartilages, Mr. Brodie recommends rest, a succession of blisters, caustic issues, or seton, which he allows may cure "If abscess does not take place." "The formation of even the smallest quantity of pus in the joint, in cases of this disease in the young person considerably diminishes, and in the adult, very nearly precludes the possibility of any ultimate good being derived except from amputation."*

In the early period of the disease, Mr. Cooper recommends entire rest, and, if there be symptoms of acute inflammation, the application of fomentations, topical bleeding, particularly cupping; but these are no longer to be continued than during the acute stage. When the inflammatory symptoms subside, he suggests the internal and external use of iodine as deserving of trial, and advises an eschar or issue as the "Most efficacious plan of treating the disease even now known;" and afterwards adds, if "The patient survives, the case mostly ends in ankylosis."

* Pathological and Surgical Observations, page 202.

The want of a successful mode of treatment in this formidable disease, is thus forcibly expressed by Mr. Cooper: "Though my own observations," says that eminent author, "have led me to think issues and blisters as efficient as any means hitherto devised for stopping the progress of scrophulous disease of the heads of the bones, I am far from meaning to say, that such disease can generally be stopped by these, or any other remedies, local or general."*

Having thus briefly reviewed the treatment prescribed by Cooper and Brodie, whose publications on the subject, entitle them to the thanks of the profession, and the confidence of the public, inasmuch, as they have paved the way to future improvements. I shall now proceed to the discussion of a mode of treatment which has, with me, produced resolution in the acute, and absorption of matter when formed in the chronic stage, without causing either pain to the patient, or injury to the system.

* Dictionary of Practical Surgery; article, Joints, p. 765. London, 1825.

The symptoms attendant on diseases of the knee-joint are so well known to the profession, and the state of the parts so easily ascertained by inspection, that the omission of them will be in no respect detrimental to the object in view; especially, as they have been so minutely described by every author who has written on the subject, and, as an able writer has expressed "In all diseased joints the same principles should guide our practice."*

But as diseases of the hip-joint are generally (from motives of delicacy) comparatively difficult of access to inspection to that of the knee, a recapitulation of some of the leading symptoms, may tend to impress on the mind of the young practitioner, the necessity of speedily allaying the extreme irritability so frequently consequent to this disease.

Disease of the hip-joint, in the advanced stage, has generally been fatal to the patient, not so

* Treatise on the Nature and Treatment of Scrophula, page 212. By Eusebius Arthur Lloyd, Esq.

much from the local affection itself, abstractly considered, as from the irritation produced by it in the system.

The disease may commence with inflammation in the synovial membrane, articular cartilages, or cancelli of the bones forming the joint; followed by ulceration, terminating in a change of structure of the parts; the seat of disease speedily communicating its baneful effects to the other parts of the joint: unless its progress be arrested by medicine.

When the acetabulum, or head of the bone is affected, it changes in a remarkable manner the aspect of the foot of the limb diseased; of which I had a fine illustration in the case of a patient where the disease produced a partial dislocation of the posterior parts of the head of the femur, so that the toes were turned inwards in a line with the body. As the patient recovered the use of his limb, the foot gradually regained its natural position.

In all cases of this disease which have come under my observation, the patients have uniformly been of a scrophulous habit, and I am of opinion, that all spontaneous diseases of the joints, both of the upper and lower extremities, proceed from a scrophulous diathesis.

I am aware that Mr. Brodie has mentioned disease of the joints occurring "Very frequently, where no such predisposition exists."* But as laxity of the muscular fibre uniformly accompanies disease of the articulations, and, as the remedies which are most powerful in the treatment of scrophula, are, also, those that have the most beneficial effects on diseased joints; so it may thence be inferred, that spontaneous disease of the knee, or hip-joint, is only a certain modification of scrophula induced by fatigue or exposure, so as to cause a determination to the parts.† But whatever may be the cause of this dan-

* Brodie's Pathol. Obs. page 226.

† "Cold, joined to moisture, and irregularity of climate, appear to prove predisposing causes of this disease; for it is not found in those countries where the climate is warm and the weather constant."

Wilson on the Joints, page, 352.

gerous disease, whether arising from inflammation or scrophula, or both, its existence and progression may be ascertained by the following symptoms.

INCIPIENT STAGE.

Weakness in the limb affected,^a which appears emaciated^b and elongated,^c with limping when

^a "The approach of the disease of the hip-joint is much more insidious, than that of a white swelling. Some degree of pain always precedes the latter affection; but, the only forerunner of the former is frequently a slight weakness, and limping of the affected limb."

Cooper's Surgical Dictionary, page 766.

"A weakness of the leg, and thigh, just beginning to be apparent."

Ford on Disease of the Hip-Joint, page 12.

^b "When the functions of a limb are obstructed by disease, the bulk of the member generally diminishes, and the muscles become emaciated."

"Nearly as soon as the least degree of lameness can be perceived, the leg and thigh have actually wasted, and their circumference has diminished."

Cooper's Surgical Dictionary, page 767.

"Moreover about this time, the limb, on strict examination, will be found, both in the thigh, and on the calf of the leg, to be really lessened in its circumference."

Ford on Disease of the Hip-Joint, p. 12.

"Upon examination, the muscles of the thigh and nates of the affected side are found wasted."

Lloyd on Scrophula, page 188.

"The thigh and leg, when compared with those of the opposite side, will now be found less in circumference in their muscular parts."

Wilson on the Joints, page 385.

^c "Another symptom, which occurs in this disease, is an alteration in the length of the limb."

Brodie's Pathol. Obs. page 158.

attempting to walk,^d tumefaction in the groin

"A striking alteration likewise, takes place with regard to its length. It is more, or less elongated; the elongation is visible, and the degree of it ascertainable."

Ford on Disease of the Hip-Joint, page 12.

"The limb, to the feelings of the patient, and to the eyes of a casual observer, will seem to be elongated."

Wilson on the Joints, page 386.

"The increased length of the limb, a symptom that has been noticed by all practitioners since De Haen, is a very remarkable and curious occurrence, in the early stage of the present disease."

Cooper's Surgical Dictionary, page 767.

^d "A degree of lameness, scarcely visible, is the first symptom, which is often ascribed to indolence, or to the indulgence of an awkward habit."

Ford on Disease of the Hip-Joint, page 3.

"A sort of limping gait, lameness scarcely discernable." Ibid, p. 12.

"The only forerunner of the former (disease of the hip-joint,) is frequently a slight weakness and limping of the affected limb."

Cooper's Surgical Dictionary, page 766.

"The limping of the patient is a clear proof that something about the limb is wrong."

Ibid, page 767.

"The first indications that we have of this disease, if we except the disorder of the general health, are, that the patient is a little lame, and walks on his toe."

Lloyd on Scrophula, page 188.

"And when the attempt is made to walk, a degree of lameness, (that usually called limping) is perceptible, which in children is often mistaken for an acquired awkward gait."

Wilson on the Joints, page 385.

and nates,^c with tenderness and pain in the joint, particularly on motion or pressure,^f pain in and

"This leads to a more accurate inquiry, and the child is observed to limp in walking." Brodie's Pathol. Obs. page 252.

"Occasionally there is a slight degree of general tumefaction in the groin." Brodie's Pathol. Obs. page 155.

"On viewing attentively the patient in an erect posture, it is clearly discernable that there is, on the diseased side, an alteration with respect to the natural fulness and convexity of the nates, that part appearing flattened, which is usually most prominent; and a little below, towards the thigh, there is a degree of swelling, different from, and strongly contrasted to, the natural appearance of the sound limb."

Ford on Disease of the Hip-Joint, page 13.

"A degree of tenderness takes place in the groin, and the absorbent glands in general enlarge." Wilson on the Joints, page 388.

"It is not uncommon for the glands of the groin to take on the scrophulous action, to enlarge and suppurate, as one of the first symptoms of the joint of the hip being diseased." Lloyd on Scrophula, p. 188.

"They feel moreover, a tenderness in the groin, where the lymphatic glands are frequently found to be a little enlarged."

Ford on Disease of the Hip-Joint, page 16.

"Wherever the pain is situated it is aggravated by the motion of the joint; but it is aggravated in a still greater degree by whatever occasions pressure of the ulcerated cartilaginous surfaces against each other."

Brodie's Pathol. Obs. page 154.

"Though there may be more pain about the knee than the hip, at some periods of the malady in its incipient state, yet, the former articulation may be bent and extended, without any increase of uneasiness;

about the trochanter major, often shooting downwards, and felt sometimes in the knee,^f generally

but the os femoris cannot be moved about, without putting the patient to immense torture." Cooper's Dictionary of Surgery, page 768.

"The parts surrounding the joint, on pressure, indicate no great degree of painful sensation, but in general, some tenderness, where it is most likely to suffer by compression, particularly behind the great trochanter." Ford on Disease of the Hip-Joint, page 16.

"If pressure be now made over the joint, behind the great trochanter, or in the groin, it occasions pain." Lloyd on Scrophula, page 188.

"When weight is borne on the limb, the pain is greatly increased; so is it, when, in the horizontal posture, the femur is pressed, without bending, against any part of the acetabulum, particularly when pressed upwards." Wilson on the Joints, page 387.

"When the seat of the disease is in the hip, and the pain is referred to the knee, that joint may be moved without occasioning any pain, while, if the hip-joint be moved, often severe pain is the consequence."

Lloyd on Scrophula, page 194.

"All accurate observers have remarked, that, in the hip disease, the pain is not confined to the real seat of disease, but shoots down the limb, in the course of the vastus externus muscle to the knee."

Cooper's Surgical Dictionary, page 767.

"In the greater number of instances it is referred to the hip and the knee also, and the pain in the knee is generally the most severe of the two." Brodie's Pathol. Obs. page 154.

"In this disease, it is certain that the patients often refer the pain that attends it in its early stage to the knee, and sometimes the pain is said to be very acute there."

Lloyd on Scrophula, page 194.

with debility,^h characterize the disease of the hip-joint, prior to suppuration.

ACUTE STAGE.

When the inflammation is acute and suppuration taking place, the parts diseased become hot, sometimes red, frequently tense,ⁱ with extreme

"A pain in the knee, is another remarkable symptom, not unusual in the course of this disease, and so violent is it at times, as to disturb the repose of the patient at night, and to occasion the most agonizing screams."

Ford on Disease of the Hip-Joint, page 13.

"Occasionally the pain is referred to both the hip and knee; but that felt in the knee is usually described as the most severe."

Wilson on the Joints, page 385.

^h From its earliest appearance, in slight lameness, and *general debility*."

Ford on Disease of the Hip-Joint, page 2.

ⁱ "When the diseased joint is affected with acute inflammation, as generally happens, the surrounding parts become tense and extremely painful; the skin is even reddish."

Cooper's Surgical Dictionary, page 768.

"The swelling increases, but not uniformly, and it is greater after the limb has been much exercised."

Brodie's Pathol. Obs. page 252.

"In the progress of the complaint a degree of fulness and swelling gradually arise in the parts exterior to the joint, particularly in the

pain and fever,^j accompanied with spasms, particularly during sleep.^k

groin and behind the great trochanter; inflammation and great tenderness come on, the health is much disturbed, and matter forms."

Lloyd on Scrophula, page 190.

"A greater degree of tenderness and irritability in the parts round the joint, are now manifest to the touch; the enlargement of the external parts becomes more visible."

Ford on Disease of the Hip-Joint, page 17.

"When inflammation of an active kind takes place in the joint, or in the parts contiguous to it, and is attended with painful throbbing, quick pulse, and much preternatural excitement of the whole system."

Wilson on the Joints, page 390.

^j "And symptoms of inflammatory fever prevail."

Cooper's Surgical Dictionary, page 768.

"Whatever joint is the seat of the disease, the formation of abscess is always attended with an aggravation of all the symptoms."

Brodie's Pathol. Obs. page 174.

"When matter does form in the cavity of the joint, it is often very suddenly, and it is always attended by a great accession of pain and general disorder."

Lloyd on Scrophula, page 190.

"At the same time the pulse becomes quick, the tongue furred, and the whole system is in a state of preternatural excitement."

Brodie's Pathol. Obs. page 165.

^k "In this stage, startings and catchings during sleep are said to be among the most certain signs of the formation of matter."

Cooper's Surgical Dictionary, page 768.

"The formation of matter is also indicated by an aggravation of the pain, by more frequent spasms of the muscles."

Brodie's Pathol. Obs. page 164.

CHRONIC STAGE.

When abscess has formed, there is prostration of strength with great emaciation, particularly of the limb,¹ which becomes shortened,^m toes

"And so violent is it at times, as to disturb the repose of the patient at night, and to occasion the most agonizing screams."

Ford on Disease of the Hip-Joint, page 14.

"As the disease advances, the pain becomes exceedingly severe, particularly at night, when the patient is continually roused from his sleep by painful startings of the limb." Brodie's Pathol. Obs. page 153.

¹ "The leg wastes more apparently."

Ford on Disease of the Hip-Joint, page 18.

"The muscles become much wasted and lose their distinctness; the hip therefore of the affected side is much less prominent, or rather much flatter than the other, and is often intersected by sinuses discharging very fetid purulent matter." Wilson on the Joints, page 382.

"This disease of the hip-joint, in every stage of its progress, from its earliest appearance, in slight lameness, and *general debility*, to its final catastrophe, unequivocally manifested in the destruction of the thigh joint, and in emaciation of the whole body, is marked throughout by peculiar and characteristic symptoms."

Ford on Disease of the Hip-Joint, page 2.

^m "When the displacement of the head of the bone takes place the limb consequently becomes shortened, and the same thing of course occurs when the head of the bone is destroyed, as there is nothing to restrain the action of the muscles." Lloyd on Scrophula, page 192.

generally turned inwards;^a thigh bent forwards,^o
destruction of the articular parts of the joint,^p

"The limb is not only apparently, but it is really shortened."

Brodie's Pathol. Obs. page 162.

"At length it happens, that the limb, which was before elongated, shortens; and whenever this circumstance takes place, which may easily be ascertained by an actual mensuration, it announces the probability of an ensuing external suppuration."

Ford on Disease of the Hip-Joint, page 17.

"This condition is not of very long duration, and is sooner or later succeeded by a real shortening of the affected member."

Cooper's Surgical Dictionary, page 768.

"If the thigh has been much bent, and the neck of the bone but little shortened, as in other dislocations the toes will be inclined inwards."

Wilson on the Joints, page 388.

"The toes are turned inwards, and do not admit of being turned outwards."

Brodie's Pathol. Obs. page 162.

"During this period, the thigh becomes more shortened, contracts in a bent position, upward to the groin."

Ford on Disease of the Hip-Joint, page 18.

"The thigh is bent forwards."

Brodie's Pathol. Obs. page 162.

"In their recumbent posture in bed, the thigh affected is ordinarily bent forward, and every attempt to alter that position is attended with great pain."

Ford on Disease of the Hip-Joint, page 15.

"The thigh early in this disease is usually bent forwards, and the knee is also kept in the bent state."

Wilson on the Joints, page 387.

"That the head of the thigh bone may, as I have stated before, be completely destroyed from scrophulous disease, is indisputable."

Lloyd on Scrophula, page 193.

especially the acetabulum;^q head of the femur dislocated upwards and outwards,^r frequent discharge of matter or sanies;^s and hectic

"From the ulceration of the head of the femur and of its socket, the bones cannot remain in their natural situation; for from the action of the muscles, what remains of the head and neck of the femur, no longer being retained by the acetabulum, is drawn upwards, and rests on the os ilium above that cavity." Wilson on the Joints, page 388.

"And caries frequently affects not only the adjacent parts of the ossa innominata, but also the head and neck of the thigh bone."

Cooper's Surgical Dictionary, page 769.

"The bones of the pelvis, however, are always more diseased than the thigh bone, a fact, which displays the absurdity of ever thinking of amputation in these cases."

Cooper's Surgical Dictionary, page 769.

"Certain it is, that in every case of disease of the hip-joint, which has terminated fatally in the course of my observations, I have always remarked that the os innominatum has been affected by the caries in a more extensive degree, than the thigh bone itself."

Ford on Disease of the Hip-Joint, page 114.

"It is worthy of particular notice, that the head of the bone is always luxated upwards and outwards."

Cooper's Surgical Dictionary, page 768.

"And there is every symptom of a dislocation of the hip upwards and outwards."

Brodie's Pathol. Obs. page 162.

"Pus tolerably well formed is sometimes discharged at first, but afterwards the discharge becomes thin, bloody, and fetid."

Wilson on the Joints, page 389.

fever, which speedily reduce the unfortunate sufferer.[†]

In the acute stage of the complaint when irritation of the system is general, or even partial, and great pain and tenderness of the parts has taken place, the application of liniments,

"When abscesses of the above description burst, they continue, in general, to emit an unhealthy thin kind of matter for a long time afterwards."

Cooper's Surgical Dictionary, page 769.

"At times too, it happens, that a suppuration is formed, that the abscess bursts."

Ford on Disease of the Hip-Joint, page 20.

"It deserves however, a particular observation, that an external suppuration is not always a necessary, and unavoidable consequence of the shortening of the thigh bone, and of the caries of the hip-joint."

Ibid, page 19.

"The hip disease generally induces hectic symptoms, after it has existed a certain time."

Cooper's Surgical Dictionary, page 768.

"The abscesses discharge a large quantity of thin pus, and in the worst cases a copious suppuration continues, until the powers of the patient are exhausted, and enfeebled and emaciated he sinks under the symptoms of a hectic fever."

Brodie's Pathol. Obs. page 165.

"The patient grows languid, and hectic, loses his appetite, becomes subject to colliquative purging, sweats profusely at nights, and sinks apparently, under the pressure of his complicated maladies."

Ford on Disease of the Hip-Joint, page 18.

ointments, or friction, is inadmissible;* as well from the pain and irritation as the apparent hopelessness of the case.

Opium may soothe the pain, and lull the patient to repose; but as soon as its anodyne and soporific effects subside—irritation and pain, accompanied with lassitude and defective tone of the digestive organs, return with redoubled violence.

Under these circumstances, what other mode of treatment ought to be adopted than those which have been already mentioned? The indication of cure appears to me to consist, in producing healthy action in the parts diseased, consequently alleviation of pain and irritability. If this point be gained, then absorption of matter, (if formed) will take place, with diminution of the size of the parts, and total cessation of pain.

Agreeable to this indication of cure, neither blisters, issues, setons, friction, with or without

* "Friction is invariably injurious."—Brodie's Pathol. Obs. p. 181.

liniments or ointments are admissible, in as much as they will increase the pain and irritability of the parts. If the local application of remedies, whose medical qualities are known to be valuable in other diseases, be inadmissible from their frequent opposition to the indication of cure; the exhibition of medicine internally, must be of still more difficult administration, from the new combinations formed before it arrives at the seat of disease: and even then, the whole system must be saturated with the medicine, before any amelioration of the diseased joint can be effected, and also, the risk of the stomach becoming disordered. In the meantime, destruction of the parts takes place, and the system becomes frequently so exhausted as to render the case hopeless.

When exhibiting mercury in the cure of diseased inguinal glands, resolution is more speedily effected by inunction, than when the medicine is taken internally; because of its direct application to the parts forming the seat of disease. Now, if one medicine be capable of

effecting a cure by absorption, it should follow as a natural inference, that other medicines might possibly act in the same manner; at least they deserve a trial, especially if those taken internally fail to produce the desired effect, or from various circumstances, may be found inadmissible.

Having formerly observed the good effects of Iodine, in the treatment of diseases of the ear;* and having also succeeded beyond the most sanguine expectation, in the resolution of several enlarged inguinal glands, in the application of the tincture to the parts by means of a small camel hair brush; I was resolved to make a trial of the tincture in the same manner, as an external or local application to the first case of diseased articulation that occurred in my practice; and fortunately had an opportunity in a few days afterwards, of putting it into practice.

* Illustrations of Acoustic Surgery, page 92; London, 1825.

It may at the same time be remarked, that these Illustrations were published *prior* to the appearance of Dr. Manson's Researches on the effects of Iodine in Scrophula.

CASE I.

A poor woman about thirty-five years of age, solicited advice, respecting the middle finger of her left hand, which had been cut near the second joint with a sickle, when at harvest, eight days prior to the period of application.

The joint formed by the articulation of the first and second phalanx was swelled to nearly twice the size of that of the right hand, the wound was closed, and had extended to the joint. As motion was apparently lost, so, I therefore concluded, that the tendon of the flexor muscle had been divided, and adhesion of the tendon taken place partially, assisted by the bent position of the finger.

I applied the Tincture of Iodine to the parts, by means of a small camel hair pencil, or brush; and as the back of the hand was painful and swollen, I extended the application of the tincture to the parts around, to the extent of two inches

above the wound, and to the end of the finger. I continued the application every morning, and in a few days the swelling diminished; in eight days, motion was partially restored, and at the time when she left town, (about a fortnight from the period of admission) her finger was reduced to nearly its usual size, and rendered as useful as before the accident occurred.

The next case which occurred, was active inflammation in the hand; and the rapid cure effected by the application of the Tincture, will be best seen by the following short history.

CASE II.

March 22nd, 1826. Jane Wynn, ætat. 19, has a large swelling on the back of the left hand, which obstructs the motion of the wrist and fingers; parts painful to the touch; the circumference of the hand measures eight inches and three quarters—menstruation and bowels regular.

R. Applicat. Tinct. Iodinæ parti tumefactæ.

23rd. Considerable diminution of the swelling ; parts measure only seven inches and three quarters in circumference ; motion of the hand almost restored ; pain diminished.

Repet. applicat. Tincturæ.

24th. Pain gone ; has the free use of her hand and fingers ; and has sewed this morning.

27th. Patient dismissed cured.

Shortly after this period, a young gentleman of about eleven years of age, was committed to my care under the following circumstances.

CASE III.

The patient had received, several months ago, a partial injury on the first joint of the middle finger of the right hand ; and had been under the care of a practitioner who made an incision in the palm of the hand, opposite to the articulation, so as to divide the tendon of the flexor muscle, in order, as he (the medical attendant) said, “ *to draw off the humour!!*”

However prejudiced this gentleman might be in favour of his peculiar mode of practice, yet I could never bring myself to accord with it; more especially, when the disease in the joint was in no way benefitted by this most unsurgical operation; by which the uses of the tendon were almost destroyed, and the finger became so contracted, that when the patient endeavoured to extend the hand and fingers, it formed a perpendicular to the others when extended. The joint was considerably enlarged, and extremely painful to the touch, with great irritability in the system. I applied the tincture externally, in the manner described, and in four days afterwards, no pain was felt in the parts, integuments moveable, but considerably thickened. As the patient appeared of rather a scrophulous habit, so I gave five grains of the Pulvis Comp. in milk, three times a day,* and continued the application of the tincture every morning. The tendon of the muscle gradually relaxed, induration of the integuments decreased

* See Appendix, Formula No. II.

rapidly, and in about five weeks, the patient was dismissed cured.

CASE IV.

March 1st, 1827. Caroline R. Large, ætat. 19. Great pain in the joint of the left index finger, which extends up the fore-arm, and downwards to the point of the finger; pain increased by motion; slight discoloration of the parts, and matter distinctly felt; grating noise or crepitus perceptible when the joint is moved. Complaint originated about twelve months ago.

R. Applicat. Tinct. Iodinæ partibus dolentibus omni die.

R. Pil. Hydrarg.

— Rhei. C. āā M. ft. Pil. Capiat duas omni nocte.

7th. The tincture has been applied regularly every morning to the extent of nearly a dram, above and below, as well as on the parts. Pain gone, swelling considerably diminished. The matter which was apparently within the capsular ligament has been absorbed.

10th. As the girl persisted in returning to her service she was discharged.

31st. The patient presented herself this day, the parts formerly under treatment, swollen and painful, occasioned by resuming her situation of chamber-maid, before the joint had become fully strengthened.

R. Repet. applicat. Tincturæ.

April 7th. Pain and tumefaction gone ; the application to be continued a few days longer, in order to reduce the integuments, which have become considerably thickened.

12th. Patient dismissed cured.

CASE V.

March 10, 1827. Edward Epworth, ætat. 5½. The left foot considerably enlarged, especially the parts covering the metatarsal bones ; matter felt and seen under the integuments. From the great irritation in the system, the bones underneath are supposed to be affected.

R. Applicat. Tinct. Iodinæ partibus dolentibus omni die.

R. Hyd. Submur. gr. ij.

Pulv. Jalap. gr. vi. M. ft. P. sum. mane.

12th. As the relations of the patient supposed the tumour to contain a quantity of pus, I laid it open with a lancet; only a small quantity of matter escaped, the application having caused absorption of the greatest part of the pus, and also partially organized the cavity which was filled with fibres of muscular substance, running in various directions.

R. Repet. Applicat. Tincturæ.

22nd. Patient discharged cured.

REMARKS. The boy having received no external injury on the parts affected, which had gradually increased, without any apparent cause; and being of a delicate habit, living in a small apartment with his father, mother, and four children; and the family being in straitened circumstances, I have, therefore, little hesitation in classing his disease to be scrophula, and that the application had been of the greatest benefit in saving the limb.

CASE VI.

March 12th, 1827. — B——n, ætat. 15, has considerable swelling and pain in the left knee, particularly in the lateral parts on each side of the patella. Has been obliged to leave her situation of chamber-maid, in consequence of being unable to walk or even move without great pain. When the joint is moved by the hand, a crepitus is distinctly felt and heard. Patient attributes the complaint to her kneeling, when washing the kitchen floor, which is laid with stone. Has never menstruated, and is of a delicate constitution.

R. Applicat. Tinct. Iodinæ parti tumefactæ.

R. Pulv. Rhei. gr. vi.

Hydrarg. Submur. gr. iij.

Conf. Sennæ. q. s. M. ft. Bol.

Capiat omni nocte.

13th. Bolus has operated. Swelling fallen considerably, and pain diminished.

Repetat. Applicat. Tincturæ et Bol.

14th. Tumefaction considerably reduced, and pain more diminished than yesterday.

R. Pulv. Comp. No. XII.

Capiat unam in lacte ter in die.

Repet. Applicat. Tincturæ.

Omit. Bol.

15th. Pain and tumefaction gone.

Repet. Applicat. Tincturæ. et Pulv.

17th. The parts having completely resumed their healthy state and functions, the patient was dismissed cured ; and up to the present moment, has had no return of the complaint.

REMARKS. I must, however, allow that the above case could have been cured without the application of Iodine ; I have done so myself many years ago : but the above mode of treatment is so simple, free from pain, and efficacious, that it certainly has a decided superiority to that of leeches, blisters, and lotions, which are the terror of many delicate females ; besides, the external application of the tincture is more certain and

speedy in effecting a cure than that of blisters, and must, therefore, be more agreeable to the feelings of the patient; and to the reputation of the practitioner.

CASE VII.

October 27th, 1827. J—— F——e, ætat. 27, seaman; arrived this morning from Hamburg. The left hand much swollen; the posterior portion of the first phalanx of the little finger laid bare, forming externally a wound of about nearly an inch in length, and about four lines in breadth, with the edge of the wound raised considerably higher than the other parts of the finger. The greater part of the muscular substance surrounding the lateral and posterior parts of the phalanx to the joint, detached from the bone, and of a bluish colour near the periosteum. Fore-arm considerably swelled, with pain, which extends to the axilla. Motion of the fingers obstructed by the tumefaction of the parts.

R. Applicat. Tinct. Iodinæ parti tumefactæ.

R. Mistur. Comp.* ʒviiij . Cujus capiat coch. ij. mag. ter in die.

28th. Swelling of the parts, and pain diminished.

Repet. Applicat. Tincturæ et contin. Med.

30th. Fore-arm and hand reduced to the usual size ; but the tumefaction of the finger over the articulation only partially subsided. Filled up the wound with a small pledget of lint spread with the Ungt. Resin. Comp.† Applied the Tincture around, and in the wound, and bound up the finger with a narrow roller.

31st. Adhesion of the muscular substance taken place, with granulations on the bone.

November 3rd. Motion of the fingers restored, wound contracting, dressed with a pledget of lint dipped in the Tincture ; which was also ap-

* See Appendix, Formula, No. III.

† Formula, No. V.

plied in the usual manner to the whole of the finger. Patient desired to wear a glove to defend the parts from the cold.

5th. The wound healed.

R. Continuat. Applicat. Tincturæ.

6th. Patient discharged cured.

REMARKS. The history of a wound on the little finger may appear trifling to many; but when it is taken into consideration, the appearance of the hand and fore-arm with inflammation extending to the axilla, the case is then rendered of more importance to the student; especially, if it be taken into account the fate of one of the patient's shipmates, who was affected in a similar manner, had his hand amputated, and died within a few weeks after the operation.

CASE VIII.

May 4th, 1828. J—— C———n ætat. 24, bricklayer. The right knee swollen to above

twice the size of the left ; injury supposed to have arisen from a fall. Has had abscess in the same knee since he was six years of age until about two months ago, when the wounds healed up ; the eschars are still visible on the lateral parts of the knee. Has been confined to his room several days without calling in any medical aid, in the expectation of the disease being relieved by rest. Patient of a fair complexion, skin thin and white, hair reddish with freckles on the face. Of sober industrious habits, and married.

R. Applicat. Hirud. sex partibus dolentibus genu.*

5th. Leeches bled well ; but patient found no relief. Bowels costive ; tumefaction extending.

R. Applicat. Tinct. parti tumefact.

R. Sulph. Magnes. \mathfrak{z} iss.

Fol. Rosæ Gal. \mathfrak{z} ii.

Acid. Sulph. Aromat. \mathfrak{z} i.

Aqua. Bullient. \mathfrak{z} vii. M. F. Mistura. Cujus capiat coch.

ij. mag. ter in die.

* Being unable to attend the evening when first called to the patient, ordered the leeches to be applied that night, and visited him next morning.

6th. Swelling and pain considerably diminished; patella felt more distinctly than yesterday.

Continuat. applicat. Tincturæ.

7th. The size of the parts diminishing rapidly.

R. Decoct. Dulcam. C.* ʒxvi.

Capiat cyath. ter in die, continuat. applicat. Tincturæ.

8th. The thigh reduced to its natural size.

Continuat. applicat. Tincturæ, et Decoct.

13th. Patient so much recovered as to go to work. When applying the tincture he complained of a severe tickling sensation in the parts to which it was applied. The application taken up very rapidly.

Continuat. applicat. Tincturæ et Decoct.

17th. The tincture has been applied to the knee in the evening, since the 13th, instead of the morning; in order to allow the patient to continue at his work during the day.

* See Appendix, Formula IV.

24th. No application has been used since the 17th Inst. Patient says that the limb, which was formerly diseased, is now stronger than the other. Patient dismissed cured.

REMARKS. Very few patients, affected with disease of the knee-joint have recovered so speedily as the above; which I attribute to being called in when the symptoms of inflammation were at their height, consequently the tincture was rapidly absorbed, and produced the most beneficial effects.

CASE IX.

March 19th, 1827. Robert Oliver, aged one year and nine months, was brought to me under the following circumstances. Right hip greatly enlarged, particularly the parts covering, and around the joint; limb shortened; the toes turned inwards, and the leg and thigh of the diseased limb wasted; appetite bad; fæces dark coloured, with hectic fever. Hair fair, skin clear, veins seen distinctly. Patient a twin

brother, but of rather large stature. Complaint began about six months ago, and during that period, the case had been submitted successively to the inspection and treatment of two eminent physicians, and also of two surgeons. Agreeable to their directions, leeches and poultices had been applied, and medicine administered in various forms without affording any relief. One of the physicians refused to prescribe, alledging that medicine was of no use, the child being emaciated with symptoms of hectic fever, could not survive the shock which the system had received.*

At present there is a large collection of matter forming a conical shaped tumour, rather over the posterior parts of the joint, and apparently ready to burst. The integuments of the central parts of the tumour, of a whitish colour, similar to that which is usually seen covering collections of matter, and surrounded with a blush of red, in-

* These circumstances are mentioned, not with any view to depreciate the professional character of the gentlemen consulted, they being the most respectable practitioners in this town or neighbourhood ; but merely to show the deplorable state to which the patient was reduced.

dicative of the acute stage of inflammation. The tumefaction of the joint, forms a striking contrast to the emaciation of the leg and thigh. Great pain felt when the least attempt is made to move the limb, or even when the parts are slightly touched.

R. Applicat. Tinct. Iodinæ partibus dolentibus et tumefactæ omni die.

R. Pulv. Comp. gr. V. summend. omni nocte.

21st. Size of the parts rather diminished, and the integuments considerably shrivelled.

R. Decoct. Dulcam. C. ℥viii. cujus capiat coch. j. magter in die.

Contin. pulvis.

24th. Tumour still more diminished, the external integuments considerably softer and wrinkled.

Repet. applicat. et contin. Medi.

April 1st. Tumour less conical, patient can move the limb with considerably more ease than formerly.

8th. Tumefaction of the parts decreased; integuments more wrinkled and softer; appetite good; general health improving; patient can raise the limb when desired without pain. Aspect of the toes gradually resuming their natural position. Integuments covering the joint of the natural colour, but considerably thickened.

11th. Head of the trochanter major felt.

Cont. Applicat. Tincturæ et Medi.

May 9th. The whole of the hip nearly of the same size as that of the left, except over the joint which is rather more full. Right leg not quite so firm and muscular as the left. Discolouration completely gone; child looking remarkably well: induration of the integuments diminishing.

Cont. Applicat. Tincturæ et Medi.

June 8th. Child brought to the surgery, where he walked across the room with a little help. Swelling gone, there remaining only a slight elevation formed by the indurated integuments.

Cont. Applicat. Tincturæ et Medi.

August 8th. The tincture has been applied every second day this week past. The muscular substance of the leg and thigh very much improved. During a considerable period no motion could be obtained without great pain. The application speedily caused a cessation of pain except when the joint was violently moved, and even then the pain was only partial. When absorption of the tumour took place, the parts continued for some time apparently of the same size, but turned gradually soft and spongy to the touch, and diminished almost imperceptibly.

In the early period of the treatment, the integuments on, and around the joint, used to be more swollen some days than others; but now the parts are regularly of a uniform size, except a slight enlargement about the joint, and even this slight elevation is gradually diminishing.

At present (1828) the boy can run about without any assistance, has the free use of the limb, but has a slight halt which may be attributed to

part of the head of the femur being destroyed by ulceration during the time occupied by the palliative mode of practice, which was certainly consistent with the prevailing mode of treatment ; but failed completely in arresting the progress of the disease in this instance, as well as in many others.

The stimulating effects of the tincture of Iodine when applied locally, are not confined to the discussion of tumours, or even the alleviation of pain in acute inflammation ; but also productive of the most beneficial consequences in gangrene, as may be seen in the history of the following case.

Nov. 19th, 1827. William Perkins, seaman, ætat. 43, has a large oblong tumour on the left fore-arm, in the direction of the flexor muscles. Parts of a dirty, brownish, black colour, sensibility partially lost, of a doughy crepitus feel, and apparently in a state of gangrene. In the middle of the tumour is a sore about an inch and a half in diameter ; the edges elevated and thickened. Dressed the sore with lint spread with

the Ung. Resinæ. C. and then applied the tincture to the greater part of the fore-arm, and ordered seven grains of the Pulvis Comp. to be taken in milk, three times a day.

20th. Sensibility partially restored, the doughy crepitus feel of the parts considerably subsided; a large slough almost detached, adhering by only a small slip, edges of the sore more healthy than yesterday.

R. Repet. Applicat. Tincturæ Contin. Ung. et Medi.

21st. Slough came off with the dressing—sensibility of the whole of the fore-arm completely restored—granulations red and healthy, and the sore surrounded with a whitish edge.

R. Repet. Applicat. Tincturæ Contin. Ung. et Medi.

22nd. Applied the tincture to the sore, which divested the parts of their extreme irritability.

R. Repet. Applicat. Tincturæ Contin. et Medi.

23rd. Sore diminishing rapidly, and a considerable portion of new skin formed since last

dressing, to the extent of two lines in breadth, around the whole circumference of the sore.

Repet. Applicat. Tincturæ et Medi.

26th. The whole of the fore-arm is as soft and flexible as before the complaint began. Surface of the sore reduced to about three lines in diameter.

R. Repet. Applicat. Tincturæ et Medi.

December 3rd. The cuticle formed on the parts—patient dismissed cured.

This medicine when applied externally, appears to be the most effectual application that has been submitted to the public, in cases of gangrenous sores, which are rendered by it, florid and healthy, in the space of two or three days, sometimes within twenty-four hours after the application.

In the case of a strong healthy young man who had his great toe crushed by a large heavy stone, which fell, and divided the toe at the second

joint, the good effects of this mode of treatment was also fully experienced. The parts were brought together and dressed, and two days afterwards, gangrene took place ; I had therefore, no other apparent resource, but either to apply a poultice to the parts until the slough was thrown off, or to amputate. In this dilemma I applied the tincture not only to the surrounding parts, but to the slough itself, and afterwards covered the wound with lint spread with the Ung. Resin. Comp. Part of the apparently dead substance of the toe became re-organized, so that instead of one half of the toe being thrown off, there was only a small piece of the skin detached ; the bone united, parts healed and became as useful as before the accident happened.

Although pointing out the good effects which I have witnessed resulting from the external application of the tincture of Iodine, I by no means wish to depreciate the utility of the chlorate of soda, which has been recommended in these cases ; a preparation which must reflect the

highest honour on Mon. Labarraque, as an excellent chemist and philosophical pharmacien.

To have the choice of *two* powerful medicines instead of *one*, must, however, be frequently attended with the most beneficial results. The chlorates of lime and soda are excellent preparations for destroying the fetor consequent to gangrene, which is so often fatal to the patient, and are also of nearly as much benefit to the attendants as to the patient. But if the application of the tincture of Iodine be not quite so effectual in destroying the malaria of the disease as the chlorates, it is of far more essential service to the patient, by arresting the progress of disease, and causing the speedy reproduction and organization of new substance.

Each of these preparations are excellent, and in process of time their several properties will be fully appreciated by the practitioner. The chlorates of lime and soda, appear to be employed with the most salutary effects on inanimate matter, and in this respect, they are perhaps preferable to

that of Iodine ; but the tincture of Iodine, when used as an external application to the living subject, is more efficacious than either of these preparations, in arresting the progress of disease arising from constitutional or local debility ; and in repairing local destruction by stimulating the system to form and organize new substance in order to supply that which has been destroyed.

In affections of the spine, this mode of treatment is equally efficacious in arresting the progress of disease, and restoring healthy action in the parts.

A young lady who had contracted a habit of tying her clothes extremely tight, especially her gown and apron ; and the tape attached to these parts of her dress, invariably covering the same spinous process of the vertebræ, and also, being of rather a spare habit of body, the parts became tender, ulceration of the extremity of the process took place, and the integuments gradually acquired a darkish colour, and matter could be

distinctly felt. I applied the tincture in the manner described, and in the space of five weeks, the matter was absorbed, the parts and the extremity of the process regained their healthy state, and the patient was completely relieved from a dangerous complaint.

The following history of cases of enlarged inguinal glands, treated according to this new mode, may serve to shew the utility of the external application of the tincture.

A young gentleman of delicate constitution applied to me with a very large venereal bubo, to which leeches and lotions had been repeatedly applied, without arresting its progress, for it increased in size and irritability. I applied the tincture to the bubo, and also to an extent of upwards of two inches around it. On the third day the swelling and pain were gone.*

* The following bolus was taken every evening.

R. Hydrarg. Submur. gr. vi.

Pulv. Jalapæ. gr. xv.

Cons. Rosæ Gal. q. s. M. ft. bol. summand. nocte.

A young man, ætat. 20, had one of the inguinal glands enlarged; had also a chancre, and was under a course of medicine, (blue pill, &c.) without producing resolution of the gland. The application of the tincture reduced the gland to its original size in the course of a few days.

A captain of a merchant vessel applied to me with a bubo which had resisted the continued use of mercurials, both externally and internally, upwards of two months; while at the same time he could scarcely stoop by reason of the great pain and irritability in the parts. I gave a brisk purgative of calomel and jalap; applied the tincture every second day in the manner described, and in a few days the induration and swelling subsided with total cessation of pain.

I must at the same time remark, that I have applied the tincture to enlarged parotid and submaxillary glands, without effecting any reduction of their size; but in these instances it may be remarked, the glands had been in an enlarged

state upwards of twelve or fourteen years, completely callous, and unaccompanied with either pain or irritability previous to the application of the tincture; which was only applied about a fortnight in each case, and, therefore, could have little effect on the discussion of these indolent tumours.

The stimulating properties of the tincture, when applied externally, are very great. A person applied to me with extensive formation of matter in the palm of the hand. I opened the tumour with a sharp pointed bistoury, and produced a speedy evacuation of matter, and afterwards cut out a portion of the loose integuments in order to afford a permanent outlet, and prevent its accumulation.

After applying the tincture to the integuments surrounding, and forming the cavity of the tumour, I perceived the blood gradually oozing from the minute branches of the arteries of the integuments, which became adherent, and in a

few hours the parts regained their healthy appearance, and the greater part of the cavity was obliterated.

In all cases of sinuosities, the external application of the tincture is extremely useful, causing absorption of the matter and coalition of the sides of the cavities.

In two cases of fistula under my care, the one in the perinæum, and the other situated near the anus; the application of the tincture speedily effected a total obliteration of both the fistulous cavities. The fistula which was situated in the perinæum, had been an affection of several years standing, and of course required a longer period to effect a cure than the one near the anus. I have operated successfully for this complaint several times; but in future I should prefer the local application of the tincture, especially in the incipient stage, before it has communicated with the rectum or urethra, and have no doubt of effecting a cure in every instance.

The external application of the tincture has, under my care, been of the greatest benefit in the discussion of nodes. A gentleman applied to me some time ago, under the most distressing circumstances. He had great pain in the scalp, particularly a little above the left orbit, and in the occipital region, where the parts were elevated, soft, and inflamed, with considerable depression in the cranium immediately underneath the sores, and easily perceptible to the touch. The pain was so intense, as to deprive him of sleep, and he was in the habit of taking a night draught of a hundred drops of the tincture of opium, and even plunging his head in water several times during the night, in order to afford a temporary suspension of the excruciating torture of this baneful disease.* Has been bled with leeches, cupped and blistered; and has used mercurial pills, ointments, &c. upwards of three years.

* About twelve months prior to this period, the patient went to London expressly for advice, and consulted the most eminent of the profession, and was at one time under the care of a gentleman attached to the medical department of His Majesty's Household, without experiencing any relief.

He was in this deplorable state when I first applied the tincture of Iodine to the nodes, in the manner described; in a few days a gradual cessation of pain took place, and in about five or six weeks, the integuments resumed their healthy appearance. The depressions became gradually filled with deposition of osseous substance, and he slept as sound as ever he was accustomed to do, prior to the beginning of this complaint. I prescribed at the same time, medicines for other symptoms of which he complained.

I shall only mention another instance of this description, where a patient affected with Syphilis, experienced the most beneficial effects from the external application of the tincture. The patient had five nodes of various sizes in the os frontis, and in each, the external table of the bone was destroyed. The integuments covering, and around the sores, were red, indurated and painful to the touch, with discharge of matter. He had been under the care of various practitioners upwards of four years, and during that period, had

taken a vast quantity of medicine ; which successively afforded relief during the commencement of each practitioner, but after a short period, the symptoms invariably returned.

The non-mercurial treatment was tried by an eminent surgeon, upwards of five months without effecting any cure of the ulcerations. I applied the tincture around and upon the nodes, every second evening, and in a fortnight the sores healed, the integuments began to resume their natural colour, and adhered firmly to the cranium. Much to my regret, the young man would not continue under this mode of treatment, however salutary, and as he was freed from the pain and inconvenience of the ulcerations, he therefore thought all farther medicine unnecessary. When patients affected with venereal complaints, are of a scrophulous diathesis ; the long continued use of mercurials, frequently call into action the latent constitutional affection, and in these instances, the Iodine will be found a valuable medicine.

In affections of the mamma, the external application of the tincture of Iodine has the most decided superiority over that of any medicine which I have seen used for that purpose.*

The following history of the treatment of a patient, selected from a number of cases now before me, may serve as a specimen of its curative qualities.

* There is no doubt, that several excellent formulæ have been given for the preparation of iodinic ointments and liniments, to be used towards effecting resolution; but, let the most zealous supporter of inunction compare for a moment the superior advantages of the application of the tincture, to all the ointments or liniments extant, in a case of acute inflammation of the breast; where the pain is generally so great as to hinder the patient enjoying a moment's rest, either by day or night. And when even the parts are so irritable, that the mere shifting of the dressings or fomentations, cause the most excruciating torture.

In a case of this description, would it not be the height of folly to attempt using iodinic ointments or liniments by means of friction, especially when the external application of the tincture induces not the least degree of pain; but on the contrary, when applied in a judicious manner, acts as an anodyne, and is, at the same time, so salutary and speedy, in effecting a cure, as almost to entitle it to all the boasted attributes of a specific. Iodinic ointments or liniments, can only be used with advantage (by friction) in callous affections.

Sept. 6th, 1827. A young woman, ætat. 20, applied to me with nearly the whole of the conglomerate glands in the superior parts of the right mamma, indurated and swollen; occasioned by a blow which she had received about two years ago. Immediately after she had received the blow, the parts became very much discoloured, and several weeks elapsed before the integuments regained their usual appearance.

As the discolouration disappeared, the upper parts of the mamma became gradually indurated, accompanied with severe shooting pains, darting towards the axilla, and which had increased very much within the last twelve months.

The tincture of Iodine was applied (in the manner described) every evening; and seven grains of the Pulvis Comp. mixed in a little milk, taken three times a day. In a week, the pain was subdued; and in three weeks afterwards, the indurated glands were as soft and flexible, and the integuments as elastic as before the ac-

cident happened. The general appearance and health of the patient were also greatly improved.

I have also used the application of the tincture with the greatest success in those cases of inflammation of the mamma, which occur generally within the month, consequent to parturition. In all these cases, the breast was hot, considerably enlarged, the integuments tense and shining, with a blush of red, and the veins seen distinctly of a bluish tint, and accompanied more or less with symptomatic fever.

This complaint frequently attacks patients of a delicate constitution, whose circumstances oblige them to attend to household affairs before they have fully recovered from the effects of labour; and by that means, are exposed to cold and fatigue. It may be caused by insanity. It is also caused, or at least greatly accelerated by an abundant secretion of milk, which is sometimes so great as to render the lactiferous ducts gorged and turgid, and obstruct the circulation in the capillary, or

veino-arterial vessels of the mamma, and by that means, prevent the milk being discharged. If the body or breast be then exposed to the slightest degree of cold, or even that degree of temperature which at another period would not cause any aberration in the functions of the conglomerate glands of the mamma, or its integuments; but which from the state of the patient at the time, checks the insensible perspiration.

The fulness of the breast, caused by the turgescency of the vessels, will be, by means of this change of temperature, increased to tension, and if not speedily relieved, the sensation of tension, degenerates into pain, the capillary vessels become debilitated, and inflammation and its concomitants are the usual result.

On the first symptoms of this disease, the milk should be drawn from the breast, the feet washed in tepid water at bed time, and a diaphoretic draught* taken; the bowels should also be gently

* R. Tr. Ipec. gtt xv.

— Opii gtt. xii.

Aqua Fontanæ ℥i. M. ft. haustus.

moved next morning, and the patient's apartment kept in a suitable temperature.

If these, or similar means be not used, the inflammatory symptoms will speedily increase, and suppuration followed sometimes by gangrene, is too often the consequence of inattention to the precursory symptoms of this troublesome and dangerous disease.

Few diseases affecting females, are so intractable as inflammation of the mamma; a celebrated author has with great propriety remarked, "It is a very difficult thing to prevent this inflammation from ending in suppuration."*

In every case of this disease under my care, the external application of the tincture, conjoined with the exhibition of the Pulvis Comp. speedily effected a cure.†

* Principles of Midwifery, by John Burns, C. M. Professor of Surgery, in the University of Glasgow.

† If the patient did not suckle her child at the time, I generally ordered a saline purgative instead of the compound powder. In several instances I have given a bolus of calomel and jalap, with very good effect.

By analogical deduction, I should suppose this mode of treatment to be a certain cure for that formidable disease Phlegmatia Dolens. I have likewise extended this mode of treatment to several cases of cancerous affections of the breast, and which were cured by it: at least, the ulcers healed, and all symptoms of the disease disappeared, and up to this period they have not returned.

The reader may perhaps consider the history of the various cases that have been related, as extremely unconnected with an "Essay on the Treatment of Diseased Joints," and, therefore, an encroachment on his valuable time. But the young practitioner will, I hope, be so indulgent as to excuse this seeming digression from the mere locality of articulation to other parts of the system; especially, as all these cases serve to illustrate the principles of this new mode of treatment, and render it more generally subservient to the healing art.

The particular purgative to be employed, ought always to be determined by the constitutional temperament of the patient, and also, whether lactation is, or is not to be preserved.

ON THE TREATMENT
OF THE
NON-UNION OF FRACTURE.

The treatment of the non-union of fracture, has engaged the attention of the most eminent of the profession ; and various modes have been adopted for the cure of this distressing circumstance, chiefly with the view of increasing the action of the arterial vessels in the extremities of the fracture, in order that they may secrete ossific matter, so as to unite and consolidate the parts. The indication of cure, is no doubt correct, but the means used, even by the most celebrated practitioners, have often failed.

John Hunter advised, that the extremities of the fracture should be rubbed together, and the

patient be allowed to walk, when the fracture was of the leg or thigh, in order to produce irritation.*

Mr. White of Manchester, first proposed the making of a longitudinal incision down to the bone; turning out one of the ends, and cutting off a small portion of the extremity; replacing it in apposition, and then endeavouring to heal it in the usual manner. He performed the first operation successfully. Other practitioners soon availed themselves of Mr. White's invention, many of whom were successful in the operation, but by far the greater number have failed in effecting a union of the fracture in patients affected with this peculiar disease.

The failure of this mode of treatment, even in many instances favourable to the operation, led to the simple and less dangerous operation of Dr. Physic, of New York, who proposed inserting a seton between the ends of the bone, so as to cause irritation in the extremities of the frac-

* The limb is of course supposed to be dressed and secured with splints and bandage in the usual manner.

ture, and was completely successful in his first operation. But even this mode has failed in the hands of several eminent practitioners; and has lately excited considerable interest as to the cause, whether local or constitutional.

Old age or disease, previous ulceration in the limb, extremities of the fracture not being in apposition, or, the intervention of loose speculæ, or muscular substance, have each been assigned as the proximate cause of this disease.

Baron Larrey ascribes the cases of non-union which came under his immediate notice in Egypt and Syria—to the continual motion to which the wounded were exposed—to the bad quality of the food and water used—and to the deleterious atmosphere of those countries; causes, so powerful as to completely baffle the skill of this experienced and celebrated surgeon.

Mr. Cooper has, with great judgment, remarked: "There are certain indiscribable constitutions in which bones, more particularly

however, the os brachi, will not unite again after being broken.”*

According to Mr. Wilson, “The consolidation of a fracture may also be retarded, or the union be prevented from taking place, by different local circumstances; the last occurrence may happen, from one of the fractured portions of bone not having a sufficient degree of vascularity to allow of union.”†

When the extremities of the fracture are in apposition, and no intervention by displaced muscular, or ligamentous fibres, nerves, vessels, or loose speculæ: I am disposed to ascribe the non-union of fracture, and formation of false joints, in these instances, to debility of the arteries of the extremities of the fracture, so that they are rendered incapable of secreting ossific matter.

* Dictionary of Practical Surgery, page 486. London, 1825.

† Lectures on the Structure and Physiology of the Parts composing the Skeleton, and on the Diseases of the Bones and Joints, page 214.

London, 1820.

In a paper read by Mr. Amesbury before the London Medical Society, Feb. 18th, 1828, there is the history of a strong healthy patient, a seaman, ætat. 36, admitted into St. Thomas's Hospital, March 11th, 1827, having "a very loose oblique fracture at the upper part of the middle third of the thigh, of twenty weeks standing."* Mr. Amesbury requested to have the care of this patient, to which the medical officers of the hospital consented. Mr. A. applied his apparatus so as to maintain the proper length of the limb, and press the fractured surfaces strongly together.† The apparatus was worn ten weeks, but failed in effecting an union. The seton was also tried, but proved unsuccessful. As a *dernier resort*, Mr. Green cut down on the fracture (agreeable to Mr. White's mode) and removed the extremity by means of a Hey's saw. But even this mode was unsuccessful during seven weeks trial.

* Medico-Chirurgical Review, Feb. 1828, and the London Medical Gazette, page 357.

† Prior to this period, Mr. Amesbury had been uniformly successful in eighteen cases. His mode of treatment consists in making pressure on the parts by means of an instrument of his own invention, and keeping the patient completely at rest.

The limb was ultimately amputated by Mr. Green, surgeon to St. Thomas's Hospital. The patient was a strong healthy seaman, of a constitution apparently similar to that of forty-five patients who were affected in the same manner, and who had been submitted to the inspection of Mr. Amesbury.

Since neither excision of the extremities, seton, nor pressure have been uniformly successful, a desideratum is therefore still wanting for this singular disease.

The following is the history of a case, of forty six weeks standing, exhibiting a new mode of treatment for the cure of the non-union of fracture, and which was so successful after other modes had failed, that I have ventured to recommend it to the particular attention of the profession.

Hull, November 18th 1826. Samuel Ridpath, ætat. 18, seaman apprentice, applied to me under the following circumstances. The patient had

been employed during the preceding summer, on board of the ship Alfred, in the Davis' Straits fishery : and on the 31st of May his right leg was fractured by the tiller of the vessel, when she was making a "*stern board*" among the ice. The tibia and fibula were both broken, but reduced immediately afterwards by the surgeon of the vessel. The fracture being oblique, and bad weather occurring, the medical attendant failed in keeping the extremities of the bones in apposition.* As to

* Several years ago, when at sea, and having a patient under my care with an extremely oblique fracture of both bones of the left leg which had baffled the exertions of several practitioners to reduce. I succeeded in keeping the extremities of the fracture in apposition by the following expedient. I caused the Patient to be laid on his left side, and took a strong piece of sheep's skin, and folded it so as to be about six inches in breadth when doubled, and then padded it with tow, and stitched the whole to the thickness of an inch and a half. I placed it around the lower part of the thigh, close to the knee-joint, and fastened the ends to a piece of wood which projected nearly four inches from the inner side of his cot on which he was laid. I then prepared a similar piece for the ankle, and passed it round the limb, with the centre under the external malleolus, and then crossed the ends so as to cover the internal malleolus.

To the foot of the frame of the cot, I nailed a strong piece of leather, and making about seven or eight holes in the outer edge of it, and the

the propriety of his conduct, in allowing the bones to remain in that state, it forms no part of the present subject, and I shall therefore merely state the situation in which I found the limb at the time of application. The extremity of the lower portion of the fibula was detained in the gastrocnemius muscle, while the extremity of the upper portion was in partial contact with the extremity of the lower portion of the tibia, and the extremity of the upper portion of the tibia, from the obliquity of the fracture, overlayed, but in partial contact with the extremity of the lower portion.

same number in the ends of the padded piece of leather around the ankle, I then passed a piece of whip-cord through the holes, in the manner that a lanyard is rove in the dead eyes of the standing rigging of a vessel. The movable and immovable pieces of leather being nearly one foot distant, and the limb being properly placed and supported to a level with the edge of the cot, I pulled the one end of the cord (the other being fast) until the extremities of the oblique fracture were fairly in apposition, and then made the loose end of the cord fast. If at any time there was the least slackness in the cord, it was pulled tight, and secured. And in this manner, visiting and attending the patient three or four times every day, the parts were kept in complete apposition; union took place, the limb was perfectly straight, of the same length as the other, and the patient able to walk long before the vessel arrived in port.

The patient was obliged to be supported, at first with a crutch, and afterwards with a staff, from the weakness of the limb, otherwise in excellent health, and a strong good looking young man. I applied a pledget of lint, dipped in a stimulating and astringent lotion, to the fracture, and then passed a bandage over it, from the toes to the knee, so as to cause pressure on the parts, and ordered him to take a wine glassful of the decoction of dulcamara three times a day. I persevered in this mode of treatment until April, 1827, but without the least success.

Tired with this method, I proposed to cut down on the fracture, excise the extremities of the tibia and fibula, and then endeavour to place them in apposition. The owner of the vessel to whom the young man was apprentice, from principles of humanity, would not consent to the operation ; but preferred consulting his physician, a gentleman well known in the medical circles, and of extensive practice.

After minute investigation, the physician disapproved of the operation, chiefly from the length

of time elapsed since the accident happened, and the danger to which the patient might be exposed from the operation; but advised that he should wear pieces of strong leather attached to his shoes, in order to defend the parts from injury, and added, that the limb might, perhaps, get better.

From the great uncertainty, often fatally attending excision of the extremities of the fracture, I could not, consistently with due regard to medical etiquette, perform the operation as mentioned, contrary to the medical opinion delivered, and also, against the will of the patient, who objected to the operation. Under these circumstances, I desired the patient to call upon me next day, and I would by that time endeavour, if possible, to hit upon some expedient, which, perhaps, might relieve, or at least ameliorate, the disagreeable and painful condition of the limb.

On due reflection I was convinced, that if six months trial of the Hunterian mode, partially com-

bined with that of Mr. Amesbury, had no effect in relieving any of the symptoms, they would not in all probability be any way relieved even by a continuance of seven years of the same mode of treatment.

But what was to be done? for although a physician might, knowing that medicine could be of no avail in this instance, consistently propose the case to be left to nature; yet, no surgeon could, or ought to forsake his patient until either he be dismissed, or the patient relieved as far as surgery will admit.

From the stimulating effects of the Tincture of Iodine when applied externally,* I resolved to put its qualities to a severe test, by applying it to the limb, in the manner already described, in order to produce increased action of the arteries in the extremities of the fracture, and consequently secretion of ossific matter. At this

* The greatest advocates for the exhibition of Iodine, powerful as it may be in many instances, could not, I presume, with any plausibility have ordered it to be taken *internally*, in this case.

period it was with the greatest difficulty and extreme pain, that the patient could drag himself along with a staff. The limb was considerably swelled, particularly below the fracture ; and if, when attempting to drag himself along, he touched a stone, or the least elevation above the common level of the path on which he walked, he was by that means put to the most excruciating torture. His foot, with the lower portion of the leg, could be wrought outwards and inwards, in a rotatory manner, when crepitus could be distinctly felt ; while at the same time, the knee and upper part of the leg were not affected by the motion of the foot. The limb was about two inches shorter than the other.

April 16th. Applied the tincture to the limb, particularly about the fracture, and the parts around the ankle, and in three days afterwards, (19th,) the pain and swelling were removed. The patient took at the same time, a wine glassful of the Decoct. Dulcam. C. three times a day. I continued to apply the tincture every morn-

ing until May, and then applied it only every second day; the decoction was, however, continued as usual. The parts became stimulated, and deposited osseous substance, union of the extremities of the fractured bones took place, and in the month of August following, (1827) he was dismissed cured, with the limb apparently stronger than before the accident happened, and is now (1828) on board of his vessel, as active as formerly.*

A strong seaman, ætat. 30, during a voyage to Davis' Straights, met with an accident by which the neck of the os femoris of the left thigh was fractured. The surgeon of the vessel, a graduate of an university, and a gentleman of some abilities, reduced the fracture, which was kept in apposition with considerable difficulty. The patient was obliged to be confined for some weeks, but ultimately the surgeon succeeded in rendering him fit for duty.

* The patient walked (supported by a staff) to my surgery every time the medicine was applied, so that part of the Hunterian mode was adopted, in conjunction with my own.

Several weeks after the vessel had arrived in Hull, the patient applied to me for a complaint originating in cold, and after the affection was subdued, I examined the thigh and other parts the seat of the former accident; and learned, that he had a considerable degree of weakness, attended with pain, in, or near the acetabulum when walking.*

I applied the tincture very extensively, once every two days, on the groin, haunch, and part of the hip, as being the parts from which the medicine was most likely to arrive at the seat of disease. In a few days a cessation of pain took place, and in a month from the time of the first application, the parts were restored to their former strength.

* The surgeon of the vessel supposed that the fracture was within the capsular ligament, from the great difficulty in securing the reduction, and length of time occupied in rendering the patient able to walk, however imperfectly, and that the ossific union had not been fully consolidated, when he arrived in Hull.

SURGICAL REMARKS.

The exhibition of Iodine in cases of disease induced by scrophulous diathesis, has been tried extensively by many practitioners on the Continent, and also in Britain: but generally, when prescribed to be taken internally, it has been in the form of tincture, solution, or pills; and when ordered externally, in liniments and ointments.

To such an extent was the use of this medicine carried at one period, that Dr. Zinck remarks, "It was pushed so far that I may say, without exaggeration, the tincture of Iodine bottle occupied the place of the bonbonniere, (sweet meat box) for I have seen persons carrying it about with them." The indiscriminate use of the tincture, soon produced more alarming symptoms than those for which it was employed to cure.

Hence distrust, followed by neglect, caused this medicine to be so little esteemed that, "At the close of the year 1822, the Genevese and Swiss physicians had abandoned their original confidence in the preparations of Iodine," which was taken so as to "irritate the stomach, and produce colic, head-ache, dryness and redness of the tongue, chronic inflammation of the stomach, considerable and rapid emaciation of the whole body, but most remarkably that of the *mammæ*."*

To my own knowledge, the tincture has been given in many cases where the indication of cure was such, as could not warrant its exhibition ; and therefore, no proper estimate could be formed of its qualities in these instances.

A medical friend informed me that he had often seen it taken in such quantities as to cause ptyalism. But these are only the general consequences of the introduction of any new medicine, which is always recommended for every disease indiscriminately.

* Magendie's Formulary, translated by I. Houlton, F.L.S. London 1828.

It requires extensive practice, and diligent attention to the effects produced, as well as accurate observation in the practitioner, before that any medicine ought to be recommended for the cure of disease, so as to render it beneficial to humanity.

The learned editor of the Edinburgh Medical Journal, has given a very interesting statement of the case of a young gentleman who was poisoned by taking the tincture of iodine in too large quantities. And also an account of the inspection of a woman who had died under similar circumstances. "The appearances were those of very general inflammation of the abdominal viscera, both internally and externally. The abdomen was very much distended owing to the accumulation of serous fluid in its cavity, and to the distention of the intestines, and enlargement of the other viscera. The viscera were intimately united together by strong and general adhesions. The intestines were here and there phlogosed, and in some places they had the colour which inflammation there assumes just before gangrene takes place.

The stomach was externally marbled with similar tints, and at the inferior part of the lesser curvature there was an excoriation of its peritoneal coat. The internal surface of the stomach was very red, especially near the pylorus, where likewise it was corroded in patches. The liver was large and of a pale rose colour. The sac of the pleura, like that of the peritoneum contained a considerable quantity of serum ; the pericardium adhered firmly to the sternal part of the pleura ; but in other respects the thoracic viscera were not unhealthy in appearance. The trachea was also natural, but the gullet was very much contracted in diameter, and its inner membrane was universally phlogosed."

The editor adds, " We have described them because few examples of the kind are yet on record, and to illustrate the consequences of the *rash* and *unguarded* use of this powerful drug."*

According to M. Magendie's own experience, none of these alarming symptoms occurred in his

* Edinburgh Medical and Surgical Journal, page 225, vol. xxiii.

practice, unless where the dozes were unusually great.

Dr. Manson, one of the most strenuous advocates for the use of iodine in this country, mentions that in the cases which he treated by the internal administration of the tincture, "All of them went on favourably, without any particular unpleasant effects from the medicine, and without any injury to the constitution."* The Doctor admits, however, that it caused the patients sometimes to be "Sleepy all day, attended with some degree of sickness at the stomach:" and also produced "ptyalism and head-ache."

From the history of various cases treated by the internal use of the tincture of iodine, may be seen the very great necessity of proceeding with caution in prescribing this medicine, even in small dozes, in order to prevent the occurrence of those dangerous symptoms which have been related.

* Medical Researches on the effects of Iodine.

The qualities of iodine somewhat resemble those of mercury, in so far as they are both powerful and very liable to injure the constitution, when pushed into the system in too large quantities.

In almost every instance, the success of any particular mode of treatment depends not only on the qualities and quantity of the medicine, but also on the manner of administration.

If the tincture be applied in too great a quantity, a counter-action is generally the effect produced. Thus, in the case of a young gentleman who had one of the inguinal glands enlarged, the tincture was applied several times in the space of an hour, a considerable discharge of serum took place, instead of absorption ; but yet the gland was speedily reduced to its original size.

In the case of a mechanic who had inflammation of the hand, a quantity of the tincture was

applied to the extent of nearly three drachms at one application, so that the integuments of the parts diseased, were tinged of a dark colour.

But instead of ameliorating the complaint, the heat, pain and tumefaction of the parts were increased, and this may be easily explained. A greater quantity of the medicine was applied in this instance to the parts, than was consistent with the healthy action of the vessels, or could be taken up by the absorbents, and when the parts were so much stimulated, turgescency of the capillary vessels took place, succeeded by debility, and the inflammation and tumefaction were by that means greatly increased. The patient was ultimately cured by applying the tincture very lightly, until the integuments were of a yellowish colour.

When the tincture is applied to the integuments until the parts become of a black or dark brown colour, it may serve as a criterion, that the medicine has been applied beyond that which is necessary to produce healthy action in the capillary vessels, and absorbents.

The external application of the tincture should, almost always, be premised by copious local bleeding by means of leeches, and the bowels emptied by a saline mixture ; and if the case be fistula, the lancet ought to be used freely, and the medicine applied very slightly every second day. This mode of practice in the hands of a judicious practitioner, will be invaluable ; but the greatest caution is necessary, in order to ascertain the exact quantum of the medicine necessary to be applied for the degree of inflammation existing in the parts diseased.

In callous or chronic affections, the quantity of tincture applied, should be augmented, and may be used every day ; because the parts will require more stimulus to increase the action of the vessels, and it may therefore be more freely used.

I have often observed that when desquamation of the cuticle took place, attended with great itching, produced by the external application of the tincture : the parts diseased recovered their

healthy action more rapidly than when the cuticle retained its original appearance. Dr. Manson remarks, that in several persons the skin is apt to become tender from the use of the ointment, and desquamation takes place, "The frequency of its application," says that learned author, "must therefore be regulated according to what the skin will bear in different individuals." Now, when this circumstance takes place, consequent to the external application of the tincture, it may be regarded as a favourable symptom of the successful and speedy termination of the disease.

Notwithstanding the minute discrimination required, in ascertaining the quantum of tincture which ought to be applied, in proportion to the degree of inflammatory action of the parts diseased; the superiority of the external mode of application of this medicine, to that of its being administered internally, is, in many instances, evident from the history of the cases related, and also from several other circumstances.

Both liniments and ointments, when used, require to be well rubbed on the parts affected, in order to stimulate and promote absorption, and which, will occupy a considerable portion of the time, as well as assiduity of the patient.* But even setting aside the consideration of the time so occupied, how can the hip or knee joint, when in a state of great irritation and acute inflammation, be rubbed in this manner, without producing the most painful sensations?

Whereas, the tincture may be applied to the parts in the most acute stage of inflammation, when even the mere touching of the parts, or weight of the bedclothes create of themselves intolerable pain; the external application will at this period, afford the most decided relief in assuaging pain however excruciating.

* The greatest objection which patients, have in general, to the use of mercurial ointments, in resolution of the venereal bubo; is the time occupied with inunction, and the apparent filthy state of the parts from the ointment, compared with the dispatch which may be used by internal medicine.

If it be granted, that an inflamed gland cannot be rubbed with either liniments or ointments, without causing great pain and irritation in the parts ; and if the tincture can be applied externally, so that the pain and tumefaction are gradually reduced. On comparison between these modes of treatment, the latter must certainly exhibit the mode of external application in a superior point of view, to that of taking it internally ; especially, when the cure will be greatly accelerated, and the pain and irritation avoided.

There is a remarkable phenomenon attendant on the external application of the tincture, viz. an anodyne, as well as stimulating effect, so that the patient generally feels a cessation of pain immediately after the tincture has been applied. So invariably powerful and successful is the anodyne, as well as the stimulating effects of this mode of application ; that my young pupils are in the habit of applying the tincture externally, to almost every contusion that may occur in practice, in my absence, particularly when attended with

pain and swelling. And the consequences are, immediate cessation of pain, accompanied with tone in the capillary or venio-arterial vessels, and absorption in the parts.*

I met with one of the most decided instances of its anodyne qualities, in the case of a female patient, ætat. 47, in whom the symptoms were as follows, viz. "The knee joint considerably swelled, with a fluid perceptible to the sight and touch, and apparently lodged in the bursæ mucosæ. Had the patella dislocated several weeks prior to application, when she was put to great pain by a bone-setter. The pain is at present so excessive, that it is in general four hours from the time of her going to bed, to her falling asleep."† In three days the patient was completely relieved from the pain by means of the external application and powders, and in about ten days afterwards discharged cured.

* By the term venio-arterial vessels, I mean those tubes which connect the arteries with the veins, and which seem to possess a power immediately under the influence of the nervous fasciculi distributed on the parts.

† Extracted from the private Journal.

When a powerful medicine such as iodine, is thrown into the stomach in any quantity, or if long continued, even in small quantities, it is very apt to create nausea and other disagreeable symptoms.* And although no nausea should be induced by the internal administration of the tincture; yet it is so diluted and changed by the secretion of the stomach, and thence distributed throughout the system, that before it arrives at the seat of disease, its powers must be greatly weakened. And even then, the healthy, as well as the unhealthy parts participate in its action, so that little improvement is perceptible for a length of time, in favourable cases, and the whole system must therefore be saturated with the iodine, before it produces any considerable effect on the joint, gland, or parts diseased. In the meantime, the disease proceeds, destruction of the parts take place, which perhaps can never be restored by all

* "In some individuals, after the preparations of iodine have been given internally for some time, they are apt to occasion headache, giddiness, sickness at stomach, with some degree of nausea, langour, and inaptitude for exertion."—Dr. Manson's Medical Researches, page 65.

the efforts of the healing art, and anchylosis, if the disease be in the joint, is the most favourable termination that can be anticipated. Now, if in a given number of cases, the nauseating and other disagreeable symptoms, should be produced in only one half of the number of patients by whom the tincture is taken internally ; by how much the more must the chance of these disagreeable symptoms be lessened, when the medicine is applied externally. And also, if local influence can be augmented by this mode, with less risk of affecting the health of the patient, it must therefore be more efficaciously employed in arresting the progress of local disease, as an external application, than when taken internally.

When the tincture is applied to the integuments covering and surrounding the parts diseased, agreeable to the directions laid down in the former part of this essay ; the application stimulates, and at the same time a portion of the medicine is absorbed. It may be remarked, that the more speedily the medicine is absorbed, the

cure is proportionably sooner effected; and it therefore follows, that persons in whom the absorbent system is most active, are the subjects to whom this mode of treatment will be most applicable.

The cessation of pain which generally follows the external application of this medicine, may be regarded as a consequence of the temporary restoration of the healthy action of the debilitated capillary, or veino-arterial vessels; which became stimulated by the application, so that circulation is restored, and the gorged vessels relieved of their contents. The absorption of the iodine destroys, or neutralizes the peculiar local tendency to disease. While at the same time, it gives a general stimulus and tone to the reticulated nervous fasciculi, distributed on the capillary vessels and absorbents, in, and near the seat of disease; and in this manner, healthy action is restored, and the cure effected by means of the external application of the tincture of Iodine.

ADDENDA.

Since these sheets went to the press, I have seen in Dr. Johnson's valuable Journal,* an account of a prize memoir on White Swelling of the joints, by Dr. Nicolai, of Berlin.

In his mode of treatment, the chief agents employed, are leeches, lotions, blisters, saline medicines, friction with camphorated mercurial ointments, volatile liniments, purgatives of calomel and jalap, local bleeding, pressure by bandage, baths, tartarized antimony, digitalis and sarsaparilla.

And I may also add, that since this work went to the press, I have had several cases of scrophulous affections under my care, all of which are cured, or doing well; particularly a female, in whom the tarsal bones had been carious upwards of four years, and during that period, the patient had been under the care of the most eminent surgeons in this town, without experiencing any relief: all of whom, however, agreed that the disease was incurable, and recommended amputation of the limb. Although the patient was unable to put her foot to the ground when she came under my care, yet in the space of four weeks from that period, she walked several miles.

* Medico-Chirurgical Review, April, 1828.

APPENDIX,

CONTAINING THE

FORMULÆ OF SEVERAL PREPARATIONS

MENTIONED IN THIS TREATISE.

I.

TINCTURA IODINÆ.

R. Iodinæ ʒi.

Spt. Vin. Rect. ʒiij. M. ft. Tinctura.

The tincture should be kept in a glass bottle with a ground stopper, the outside of the bottle to be painted black, to prevent the tincture being decomposed by the rays of light. In the formula of Professor Brera, forty-eight grains of Iodine are ordered to be dissolved in one ounce of alcohol, which is certainly too strong ; while the editor of the New Medico-Chirurgical Pharmacopœia falls into the opposite extreme, and prescribes only twelve grains of Iodine to the ounce of spirits. The formula of Dr. Coindet and that of the celebrated M. Magendie are similar in strength to that of Professor Brera.

Dr. Manson in his Medical Researches, orders two ounces and a half, of the rectified spirits, of

the specific gravity of 0.916, to one drachm of iodine, or twenty-four grains to the ounce of alcohol.

On this subject the learned editor of the Edinburgh Medical and Surgical Journal, remarks, "And we think there is an advantage of using a weaker tincture," (than that of Professor Brera's) "as when fully saturated, a deposit of Iodine takes place on the evaporation of the alcohol." And I may add, the tincture is more rapidly absorbed when of a moderate strength, and less danger of increasing the action of the vessels of the parts diseased, beyond the healthy standard, than when the alcohol is fully saturated.

II.

PULVIS COMPOSITA.

R. Carb. Magnes. gr. xxiv.

Pulv. Sang. Dracon. gr. xii.

— Rhei gr. xlvi. M. ft. P. No. xii. cujus capiat unam in lacte, ter in die.

The ingredients ought to be carefully powdered separately, and the whole rubbed together in the mortar upwards of six or seven hours, so that they may be intimately mixed. The compound powder so formed, assumes a most beautiful pale reddish colour, similar to that of the *P. Cinchona Oblongifolia*. The dose, to an adult, is from six to seven grains; but ought to be varied according to the age and constitution of the patient.

These powders have the most beneficial effects in arresting the laxity of the bowels, which is frequently attendant on the chronic stage of diseased extremities, both in adults and children; and also, in relieving them from acidity of the stomach, and at the same time giving tone to the chylopoetic viscera.

III.

MISTURA COMPOSITA.

R. Rad. Calumb. ʒi.

Lig. Quassiae gr. v.

Aquæ Bullient. ʒvii. M. ft. Infus. et adde,

Sulph. Magnes, ℥iss. M. ft. Mistura,
Cujus capiat coch. ij. mag. ter in die.

IV.

DECOCTUM DULCAMARÆ COMPOSITUM.

R. Sol. Dulcam. ℥i.

Lig. Quassia gr. v.

Aquæ Bullient. ℥xii. M. ft. Decoct.

The twigs of the dulcamara ought to be cut similar to those of the sarsaparilla, and the decoction should remain in an oven twelve or fourteen hours previous to its being strained. This preparation has the best effect on scrophulous patients, giving tone to the stomach, and stimulating the system.

So essentially necessary is this decoction to the completion of the cure, that several patients have remarked the alteration which they felt, in the progress of the curative symptoms when the external application of the tincture was continued without the assistance of the decoction.

V.

UNGUENTUM RESINÆ COMPOSITUM.

R. Ung. Resinæ ℥i.

Acid. Aceti. è lig. distill. ℥i. M. ft. Ung.

When the pyrolignous acid is well mixed with the resinous ointment, the preparation becomes partially oxydized, and of a beautiful pale yellowish colour. The quantity of the ointment prepared at once, should never exceed an ounce ; and ought always to be used immediately after being mixed, in order to prevent the evaporation of the acid. I have applied this ointment to scalds, burns, chilblains, and old ulcers, with uniform success, and venture to recommend it, as one of the best ointments for general practice with which I am acquainted.

THE END.

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