A full account of the system of friction, as adopted and pursued with the greatest success in cases of contracted joints and lameness, from various causes / by John Grosvenor: with observations on those cases to which it is most applicable, by William Cleoburey.

Contributors

Grosvenor, John, 1742-1823.
Cleoburey, William, 1793-1853.

Publication/Creation

Oxford : Munday and Slatter, 1825.

Persistent URL

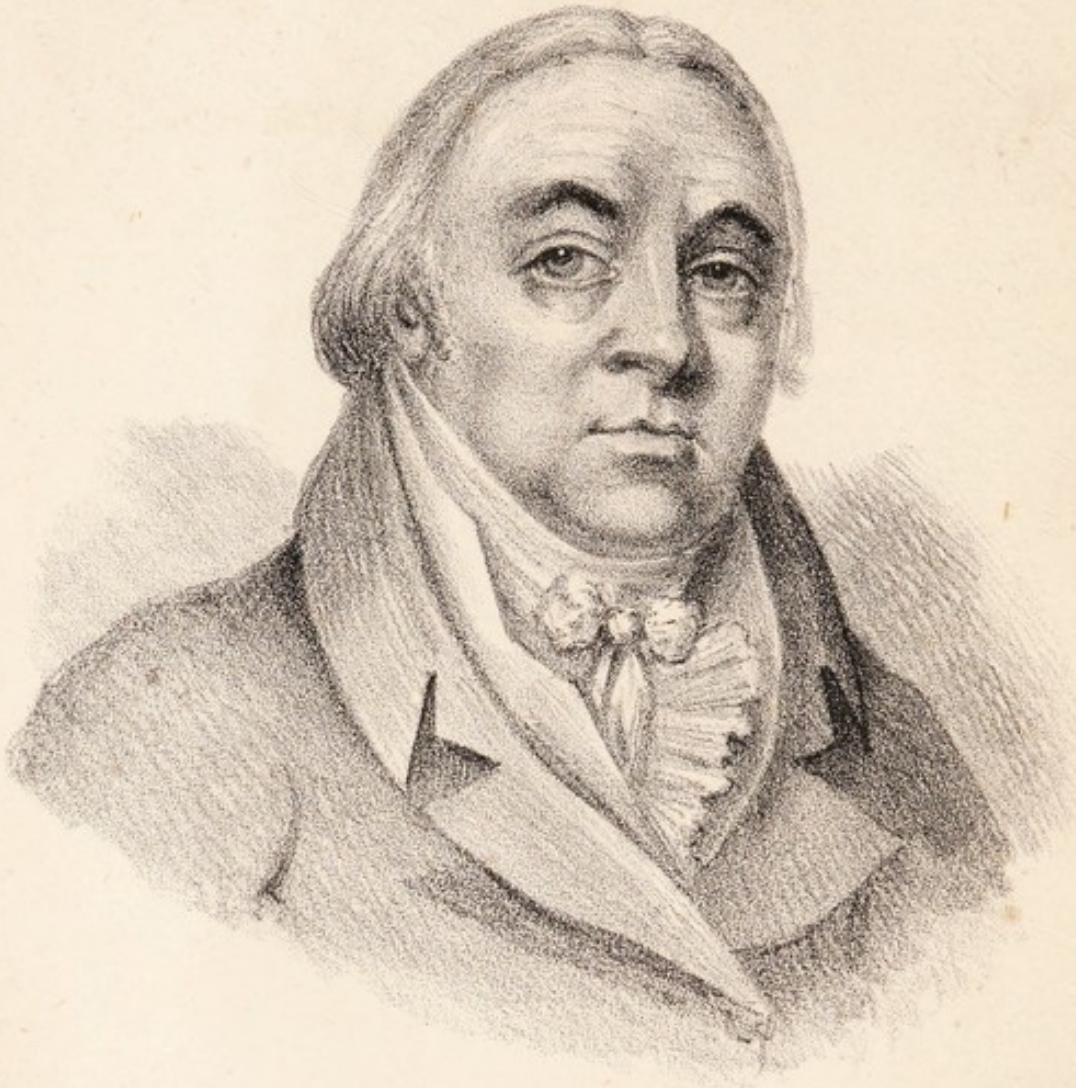
https://wellcomecollection.org/works/hsnvuax2

License and attribution

Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
https://wellcomecollection.org

CLEOBURY

SYSTEM OF FRICTION.



J. GROSVENOR. Esq.r

N. Whittock Litho.

A FULL ACCOUNT

OF THE

SYSTEM OF FRICTION,

As adopted and pursued with the greatest success

IN CASES OF

CONTRACTED JOINTS AND LAMENESS,

FROM VARIOUS CAUSES,

By the late eminent Surgeon,

JOHN GROSVENOR, ESQ. OF OXFORD:

WITH

OBSERVATIONS

ON

THOSE CASES TO WHICH IT IS MOST APPLICABLE,

BY WILLIAM CLEOBUREY,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, LONDON, AND
ONE OF THE SURGEONS OF THE RADCLIFFE INFIRMARY,
OXFORD.

THE THIRD EDITION,

Considerably enlarged:

With a Portrait and Memoir of Mr. Grosvenor.

OXFORD:

PRINTED AND SOLD BY MUNDAY AND SLATTER;

SOLD ALSO BY MESSRS. HURST, ROBINSON, AND CO. CHEAPSIDE,
LONDON.

MDCCCXXV.

TO THE

AFFLICTED WITH LAMENESS,

WHETHER FROM

Contracted, Rheumatic, or Diseased Joints.

IN addressing myself to you, I am influenced by no other motive than that of rendering you service. The management of each contracted joint I have so simply detailed, that you may, in some degree, become your own surgeon. Do not perplex yourselves in the perusal of the anatomical description of the joint affected, but if you have leisure, I recommend you to visit an anatomical museum, and there carefully examine the bones and ligaments corresponding to the joint contracted: the nature of your contraction and the site of the con-

finement of your joint would thus be detected, and a few minutes' accurate observation would point out to you the most efficient mode of applying extension and friction in order to overcome it. If you are rich, I recommend, in addition, a surgical opinion ; if poor, and in my own immediate neighbourhood, I shall merely observe, that I have and always shall have pleasure in administering to your relief. And should you be a soldier or officer, who has received a wound or injury that has affected the muscles or joints of your body, I feel that I cannot close this address without observing to you in particular, that though a great length of time may have elapsed since you received your injury, and though you may have considered your case hopeless, yet such is my confidence in this remedy, that I am persuaded

many of you, by applying it with patience and perseverance, may yet be restored; and with my best wishes for your success, I beg leave to subscribe myself your humble servant,

THE AUTHOR.

Oxford, Oct. 1824.

PREFACE.

THE two former editions of this work were intended for the public, I therefore thought it prudent to burthen them with as few technical terms and to make them as concise as possible, in order that the uninformed in anatomy might, in a few minutes, acquaint themselves with the advantages of friction.

The favorable reception this little work has already met with, induces me to attempt a fuller treatment of the subject. Indeed it was always my intention to pursue it, and I now present it to my professional brethren in some degree of order and arrangement.

In this edition I have pointed out the modus operandi of friction and extension, and described the treatment of each particular joint in succession, and as *the diseases of the* bursæ mucosæ are intimately connected, and are apt to be confounded with *those of* the joints—I have described the anatomical situation of the larger ones in the immediate neighbourhood of every joint, and treated of their diseases.

I have next commented on the application of mechanical means for removing contractions of the joints, and added a few cautions when they are adopted.

I have also briefly noticed the treatment of distortions of the feet, and made some observations on the dislocations of tendons.

The impropriety of dividing the flexor tendons of the fingers in cases of contraction is discussed—and a few cases proving the efficacy of friction and extension are related.

I have added some observations on the treatment of scrofula as connected with the joints, and concluded with the relation of a case of aneurism of the femoral artery, in which the external iliac was tied, the patient being a man at the advanced age of sixty.

MEMOIR

OF

JOHN GROSVENOR, ESQ.

MEMOIR.*

MR. GROSVENOR was the son of Stephen Grosvenor, Gent. Sub-Treasurer of Christ Church, in the University of Oxford, by Sarah, daughter of —— Tottie, Vicar of Eccleshal, and was descended from a long line of ancestors for many years settled at Ongarsheath, in the parish of Ashley, Staffordshire, a younger branch of the family of that name which came over with the Conqueror, and of which the elder is

* For this Memoir the author of this work is indebted to a relative of the deceased, a gentleman highly distinguished for his literary acquirements. It appeared in the Gentleman's Magazine soon after Mr. Grosvenor's death.

ennobled in the person of Earl Grosvenor, of Eaton Hall, Cheshire.

Mr. Grosvenor was educated under Mr. Russell, of Worcester, a gentleman of great eminence in his profession; and after walking the hospitals in London, at a very early period of life, obtained the situation of House Surgeon to the Lock Hospital. From this place he moved, in the year 1768, to Oxford, upon the invitation of his uncle Dr. Tottie, Canon of Christ Church (the author of the well-known Sermons, and of the admirable Epitaph on Bishop Hough in Worcester Cathedral,) a person then of great influence, and under whose appointment Mr. Stephen Grosvenor had, by accepting an office of no great consideration at Christ Church, endeavoured to retrieve the prodigality of his father and grandfather, by which the estates of the family had

been entirely dilapidated. Soon after his settlement at Oxford, Mr. Grosvenor succeeded to the place of Anatomical Surgeon on Dr. Lee's foundation, which recommended him to the friendship of Dr. Parsons, the Reader under that endowment, and the most popular physician ever known in Oxford, between whom and himself the closest intimacy afterwards subsisted, and which introduced him also into full practice at Christ Church. In this situation he distinguished himself by extraordinary skill and knowledge, and occasionally in the absence of the Reader, he lectured to the Students on topics applicable to the dissection of the day. Mr. Grosvenor gradually obtained considerable reputation as a Surgeon; and on the death of Sir Charles Nourse, he found himself in complete possession not only of nearly

all the business in the University and City, but of that also on every side within 30 miles of Oxford. At one period he might be said almost wholly to have lived on horseback. Though urged frequently, from the confidence reposed in his judgment, to enlarge the sphere of his exertions, he most scrupulously and most honourably acted on the distinction preserved at Oxford between the different branches of the medical profession, between the physicians, surgeons, and apothecaries; and while he never condescended to soil his fingers with the preparations of pharmacy, he constantly refused at the same time to invade the province of the physician. He practised simply as a Surgeon, in the proper and strict sense of the word. In the talents which belong to this profession, he probably never was surpassed. With

powers of discrimination, which enabled him in the most difficult cases to form a correct opinion, he united a firmness of mind which disposed him instantly on the exigency to act on it; and in the performing of the necessary operation, while his skill and anatomical knowledge secured the patient from all danger, the softness and delicacy of his touch, the unfailing and almost magical dexterity of his hand, contributed greatly to lessen the pain, and assuage the terrors with which the exhibitions of surgical skill are too often attended.

—— Subitoque omnis de corpore fugit
Quippe dolor; omnis stetit imo vulnere sanguis:
Jamque secuta manum, nullo cogente, sagitta
Excidit, atque novæ rediere in pristina vires.

As his assistance was called in by the country practitioners in all cases of difficulty and importance, his experience was not less than that of a

metropolitan operator; and from hence probably he derived that confidence and firmness, without which no certainty of result can be expected, and no expertness can exist. He was no friend to a frequent and copious administration of medicines, from a want of confidence in their virtues, where lightly or indiscriminately applied; but in cases where the use of specifics was required, he exacted a faithful and rigid attention to his prescriptions. Elevated greatly above his provincial contemporaries by his superior eminence, he was a stranger to the feelings of jealousy, and never resorted to those arts of detraction which sometimes disgrace professional competition. Of himself and his own successful career he never spoke; he left his services to speak for themselves, fully persuaded that no efforts are more generally

abortive than those of the person who tries by sounding the trumpet of his own merits to swell his importance beyond its proper limits. In the latter period of his practice, Mr. Grosvenor rendered himself justly celebrated throughout the kingdom by the application of friction to lamenesses or imperfections of motion, arising from stiff or diseased joints. He had first used it with success in a complaint of his own, a morbid affection of the knee; and by degrees its efficacy was so acknowledged that he was visited by patients from the most distant parts, of the highest rank and respectability; among others, by Mr. Hey, the able surgeon of Leeds, whose life has been given to the public by Mr. Pearson of Golden-square. Those who have benefited by the process recommended by him, and pursued under

his own immediate superintendence, in cases of this sort, and from total inability have been restored to a free use of their limbs, are best able to attest his merits. That he was scarcely in any instance known to fail, was perhaps attributable to the circumstance that he used his utmost efforts to dissuade from coming to Oxford to try the experiment every one, of whose case, from previous communications, he entertained any doubt. Possessed at this time of affluence, he became very indifferent about business, and at a time of life when he was still capable of active exertions, and his strength was but little impaired, he began to contract his practice. This he effected by resigning, in the first instance, the Anatomical Surgeonship at Christ Church, by declining his University avocations, and gradually withdraw-

ing himself from country journeys and attendances. For the last ten years of his life, he had wholly given up his profession, except in the instances of his rubbing patients, and those also he discouraged as much as possible. In his general deportment, Mr. Grosvenor was reserved, and frequently taciturn, especially among those of his own sex; but in the company of ladies, his unsociable disposition dissipated; he became lively and jocular, and indulged in an easy raillery and playful badinage which never failed to delight highly the younger part of his fair auditors. He had indeed naturally a strong turn to humour, which, however, he was seldom inclined to indulge, and which he coerced within very narrow bounds.

About 50 years ago he was strongly suspected (we believe without rea-

son) of being the author of a series of poetical Letters, in the style of the Bath Guide, which severely ridiculed the foibles, and laughed at the amusements of the civic *noblesse* of Oxford. These things, however, have long passed away, and are now forgotten; and the few belles (now grandmothers) who survive, perhaps will readily forgive the satirist (whoever he was) from whose verses their best title to earthly immortality is derived. Mr. Grosvenor was also endowed with literary talents, which he had but little leisure to cultivate, and took no pains to divulge.

In 1795 he became, on the death of his friend Mr. William Jackson, the University Printer, who, 40 years before, with the assistance of Bonnell Thornton, T. Warton, and Colman, had established the Oxford Journal, the chief proprietor of that publica-

tion, of which he took on himself the editorship, an occupation which he easily performed during his breakfast hour each morning, when the London newspapers arrived. In his hands it continued to be, though assailed by rival competitors, one of the most widely circulated and profitable weekly prints—a proof that respectability of management is a match in general for the attractions of novelty, and even the boastings of pretension.

In his private and professional character, Mr. Grosvenor was a bountiful benefactor to the poor; of which no stronger evidence need be given than that for forty years he had his surgery open from eight to ten in the morning, during which time he not only gratuitously administered his own skill to all who needed it, but also supplied at his own expense, where wanted, medicines, by orders

on the neighbouring druggist's shop. —He was twice married; first, to Anne, daughter of —— Hough, Esq. of the East India Company's service, and widow of John Parsons, M.D. Clinical Professor and Anatomical Reader in the University of Oxford; and secondly, to Charlotte, daughter of the late Charles Marsack, Esq. of Caversham Park, in the county of Oxford. He left no issue by either marriage.

He died at Oxford, in the 81st year of his age, on the 30th of June, 1823.

A FULL ACCOUNT

OF

FRICTION.

A

FULL ACCOUNT,

&c. &c.

AS the late eminent and lamented surgeon, Mr. Grosvenor, (perhaps from feelings of delicacy, or some other motives best known to himself) has not published the result of his extensive and successful practice in cases of lameness; and having witnessed myself the great benefit derived from the system of friction

which he adopted and pursued for a series of years; I feel it, therefore, almost a duty due to the public to lay before them, in as concise a manner as possible, the plan which he pursued: and at the same time to point out those cases to which it appears his practice is most applicable.

I shall first briefly state (as it may not be generally understood) the particular mode in which friction was applied by him.

For this purpose females were engaged, who supported themselves by this occupation.

The female rubber, seated on a low stool, and taking the patient's limb in her lap, (which position gave her command over it,) so as to enable her to rub with both hands—proceeded to rub with extended hands, so that the friction should be performed principally with the palm of the hand; taking long strokes, one hand ascending as the other descended; keeping both hands in motion the whole time; and occasionally applying a small quantity of fine hair powder to the palms of her hands, to prevent the moisture from producing an erasion of the skin. After the friction had been

continued in this manner for half an hour, the limb, if contracted, was taken by the female rubber at the ancle, and in the slightest possible degree an attempt was made to extend it.

The friction was at first continued for one hour daily, (more or less, as the case would admit) and gradually increased till the patient could bear it to be rubbed an hour at a time three hours in the day, observing always to rub by the watch.

After every period of rubbing was concluded, however unpleasant and

distressing it was to his patients, he invariably obliged them to put the limb to the ground, and make efforts to walk; and he has been known to urge his patients to walk, though in the attempts they have been ready to faint with the exertion.

From these attempts repeated, after every rubbing, the genial warmth produced by the friction has enabled the patients to do something more towards walking daily; and innumerable instances have been known of persons *perfectly lame*, and using *crutches*, throwing them aside in a fortnight or three weeks, where the

friction was suited to the *disorder*. Though I would observe on the other hand, that cases of lameness which left but *little hope* for the sufferers, have been removed, by *continual use* of this method for a *year* or *two*, contrary to all expectation.

It remains for me now merely to point out how judiciously Mr. Grosvenor applied this practice, by permitting it to be used in those cases only where the safety of the limb could *not be endangered;* aware as he was that however similar in appearance the cases presented to him *might be*, means diametrically

opposite were necessary, occasionally, to be used. And this brings me to my principal motive for thus hastily throwing before the public his mode of proceeding, from the strong conviction I feel of the necessity of applying it only to those cases to which it is peculiarly suited.

I will now proceed to state those cases to which, in my judgment, it is not applicable.

First—In all cases of inflammation it is highly improper, as it will not fail to accelerate suppuration.

Secondly—In scrophulous cases tending to suppuration; as the correction of the system, combined with good living and sea bathing, can, in my opinion, alone benefit the patient.

Thirdly—In cases of inflammatory gout and rheumatism, it will do mischief.

Fourthly—In cases of anchylosis, (that is, an union by bone of the articulating extremities of joints, common after white swelling, or other diseases of joints,) it can be of no service.

The cases in which it is most serviceable are :

First—Contractions of the joints unattended with inflammatory symptoms, proceeding from colds, damp beds, or rheumatism, attended with languid circulation and thickening of the ligaments.

Secondly—In those cases where there is too great a secretion of the synovial fluid in the joints, particularly in the knee joint.

Thirdly—After wounds in ligamentous, tendinous, or muscular parts,

where the function of the limb or part is impaired; but even here it should not be made use of till the inflammation and tenderness have entirely subsided. For example, officers or men who have received wounds in different campaigns, which wounds are situated in the muscular parts of the back, thigh, calf of the leg and knee joint, elbow, or other joints, provided all foreign substances have been extracted.

Fourthly—In cases of paralysis.

Fifthly—Those of chorea, combined with attention to the system.

Sixthly—Violent strains of the joints, where the inflammatory symptoms have entirely subsided.

Seventhly—In incipient cases of white swelling, for which disease it is well known that bleeding, cupping, and blistering generally fail; and that setons and issues bring the limbs more rapidly to the knife*—this is almost the only remedy that has been found effectual, and it has frequently happened that joints ab-

* This observation I mean to apply to those cases only in which the joint is penetrated by them. When the issue occasions the mere opening of an abscess, without interfering with the joint, it is serviceable.

solutely condemned to the knife, and on the point of being amputated, have been saved and their use restored by this method.

For my own part I should hesitate to remove any limb where it was possible friction might be of service, till it had been fairly applied.

Lastly—After fractures of the articulating extremities of joints; as when the bones are united a stiffness generally succeeds.

In all the various cases of dislocation of the joints, when the motion

of the joint is left impaired, if the inflammation has entirely subsided.

In most cases of fracture of either of the extremities, when a stiffness succeeds their complete union.

After ruptures in tendinous or ligamentous parts, provided they are firmly united.

In weakly or rickety children, where the circulation is languid.

Indeed friction will be found beneficial in most cases where the cir-

culation is languid, if unattended by inflammation.

In fact, I feel it but due to the great talent of my esteemed friend to be concise in whatever relates to him, aware as I am that I can add nothing to his fame. The enumeration of cases would be superfluous, as persons who have been his patients, and received benefit from his judgment, are dispersed not only throughout this kingdom, but in different parts of the Continent.

This gentleman had long retired

from the labours of his profession, of which he was a liberal practitioner, and a brilliant ornament.

Having reduced the system to the foregoing general rules, I shall now proceed, as was my original intention, when leisure was afforded me, to enter more fully on the subject; the former part of this work having been intended principally for the advantage of those readers who, being unacquainted with anatomy, might yet be desirous of applying the remedy. I shall commence with remarks on contractions of the joints, the manner in which they are pro-

duced, and the means necessary for their cure.

Among the lower classes it not unfrequently happens, that children, labouring under typhus and other violent fevers, are allowed (through the negligence of their parents) to lie with their limbs contracted during the whole period of their confinement.

On their recovery from the fever, the parents discover that some one of their joints is almost permanently contracted; sometimes the hip, at others the knee joint.

These contractions, if recent, and provided proper means be early adopted, are in general *speedily* removed; *though it occasionally happens*, when the cases are neglected, that the poor sufferers remain cripples all their lives.

Contractions of this nature are frequent after rheumatic fever, particularly what is termed rheumatic gout. But the most important contractions, and which are more particularly the subject of my present observations, are those occurring after disease in or about the parts composing the hip or knee joint. These

are of a more obstinate, and *not unfrequently* of a more permanent nature.

The manner in which these *permanent* contractions are produced, is the following:—Lymph, produced by inflammation, is thrown out around the head of the bone, and amongst the muscles situated in the immediate neighbourhood of the joint. This lymph becomes organized, and then it is that the free motion of the joint, according to the situation of the lymph, becomes restricted, affecting in some cases the extension, in others the flexion of the

limb. A child labouring under disease of the hip joint, or inflammation amongst the soft parts surrounding this joint, almost constantly lies with the thigh bent on the pelvis. This position is, with little exception, unremittingly maintained the whole time of the confinement, during which period the patient submits to the usual routine of blisters, issues, setons, &c.

By far the greater proportion of patients afflicted with disease of the hip joint die, if the disease proceeds to suppuration. The fortunate few who recover are generally cripples;

and this state is produced either by the organization of the effused lymph adhering to the head of the bone, capsular ligament, and muscles, (favoured by the position of the limb,) or by anchylosis or dislocation. In some instances the head of the bone is destroyed, or partly so; and in these cases, when anchylosis takes place, adhesions exist also.

Whoever will take the pains to dissect the joint of a patient dying from this disease, will find this statement to be correct. But, before I proceed farther, I will elucidate what I mean, by the relation of a case,

and point out, at the same time, the manner in which the cure is effected.

—— Gardiner, ætat. 13, or thereabouts, had been confined to her bed for a twelvemonth, for what was supposed to be a disease of the hip joint, and treated accordingly by the application of issues, blisters, cupping, setons, &c. Without being personal, I may observe, that the most eminent of the resident faculty had seen her, and by one or two the hip was supposed to be dislocated. This mistake might very readily be made, when we consider how much the parts become distorted

by violent inflammation, and the long-continued painful measures generally made use of in the treatment of this disease. The child obtaining no relief, her parents consulted me. On my arrival, I found the cripple in bed, and screaming most violently lest any further painful applications should be suggested for her. After calming her mind as well as I could, I examined her limb, and soon discovered (though the soft parts were much distorted by the means made use of for her cure) that the joint was not, nor ever had been dislocated, but that strong though recent adhesions had formed on the

anterior surface of the joint, so that the hip was permanently contracted, and confined by *them* in that situation. I then ordered her *out of bed*, and directing her father, who was a strong man, to hold her firm, I sat down in a chair behind her, and placing my knee against her sacrum, I laid hold of her knee with both hands. This position gave me great power and command over the parts. I then forcibly attempted to extend her thigh upon her pelvis. At this moment something was heard to crack and give way, the thigh flew backwards on the pelvis, and she immediately recovered the use of her

limb. Seven or eight years have since elapsed, and she has had no return of the complaint.

The true state of the case is this: adhesions had formed from inflammation around the head of the bone, which, favoured by the position of the limb, had united with the parts surrounding the joint. Thus the extension of the thigh was prevented by these adhesions as effectually as if it had been confined in that situation by a strong cord. My violent extension of the limb snapped these adhesions, and thus the thigh was set at liberty.

CASE II.

A poor man consulted me on account of an inability to elevate his arm. He had met with an accident about a year ago, but the joint had not been dislocated. The inflammation ran high, and he had carried his arm in a sling during the whole of the above period. I treated him in a somewhat similar manner, and by forcibly elevating, and carrying the shoulder backwards, and at the same time freely moving the head of the humerus in a rotatory direction, set this joint at liberty.

CASE III.

Martha Mayland, 16 years of age, or thereabouts, had been for a considerable time under the care of several surgeons, for what was supposed to be a disease of the hip joint. Blisters, &c. had been applied; and when I first saw her she had an immense issue in the neighbourhood of the hip joint. This I directed to be immediately healed, and it was my intention, as soon as this was done, to proceed in the manner described in the former cases; but here I was anticipated

in my practice by a noted bone-setter, I believe Mr. Thurland of Charlton,* who laid hold of the limb, and extended it in a similar manner.

* This gentleman generally intoxicated his patients previous to the operation; and his method of effecting the separation of adhesions situated round the head of the femur, was as follows. He placed the patient on a bed, with her face downwards, and made the pelvis a fixed point, by kneeling with one knee on the sacrum. He then passed his right arm under the femur, and making a lever of it, forcibly extended it backwards towards the ear till the adhesions gave way. In this manner he succeeded in nine cases out of fourteen which had baffled the regular practitioners. The other five he had too much prudence to attempt, as the joints were either under the immediate influence or effect of inflammation; or portions of bone had exfoliated from them, indicating that anchylosis had taken place.

Mr. Thurland is now dead, and was the last of a family who had practised this art for nearly a century.

The result was the same; the girl recovered the use of her limb.

I have met with so many of these cases, and they are so very similar, that were more adduced, they would not throw any *additional* light on the subject. But before I conclude these observations, I must remark, that it is *in this manner* that the Whitworth doctors, and other noted bone-setters, have acquired their great celebrity.

What I have before observed will be of little importance, unless I

point out the manner by which these cases may be distinguished from dislocations; and by so doing, enable the practitioner to set to work with a reasonable prospect of success.

In order to do this, several circumstances must be considered; and first, the different positions of the knee and foot in dislocations of the hip joint. If this joint is dislocated upward and backward, the ligamentum teres gives way, the bone is driven out of its socket, and lodges in the depression at the back of the ilium; the limb will be shortened from the knee upwards to the ilium,

and turned inwards, and you cannot turn it outwards. The toes also will correspond in being turned inwards.

In contraction and adhesion the limb will be found of its usual length, which may be ascertained by admeasurement with the sound one, *placed in a similar position;* and the situation of the toes and knee will be nearly natural; the thigh will be merely bent on the pelvis.

Thus there will be no difficulty in distinguishing between contraction of the joint and dislocation upwards.

The next more common dislocation of the thigh bone is downwards and inwards on the obturator foramen. Here the limb is elongated, the head of the bone being situated lower than the acetabulum; the situation of the trochanter is altered; the thigh is flattened; and the head of the bone may be distinctly felt at the inner and upper part of it.

Hence there will be no difficulty in distinguishing this species of unreduced dislocation from permanent contraction produced by adhesions. These are the two most frequent dislocations of the thigh, and are suffi-

cient to explain my meaning. For those of a rarer occurrence I must refer my readers to the numerous surgical works written on the subject; and particularly to the late scientific publication of Sir Ashley Cooper.

To proceed. Acute observation on the numerous cases presented to these noted bone-setters, enables them to discriminate, the instant almost they see their patients, between the curable and incurable cases. Experience teaches them what we are taught by our anatomical knowledge. They cautiously

avoid practising their art on unreduced dislocations of long standing, knowing that they must fail; whilst they almost as certainly succeed in cases of contractions and adhesions only; and this brings me again to notice the system of friction and extension as adopted by the late Mr. Grosvenor. His practice was precisely the same in effect. It was but a different mode of arriving at the same end. He pursued the cautious method, effecting, in a gradual manner, by friction, exercise, and extension, the separation or elongation of these adhesions, and also the absorption of the effused fluids. His

system did not endanger the limbs or lives of his patients.

Theirs is a practice of greater hardyhood; and woe betide those patients who fall into their hands, whose joints are under the influence of inflammation. Their violent and long-continued efforts will but aggravate the inflammation, so that suppuration, and in many instances death, will be the consequence.

From what I have already observed, it must be obvious that motion of the joint is absolutely and indispensably necessary; and that

the principle of its operation is the rupture or elongation of adhesions restricting the natural motion of the joint.

It is universally admitted that the more the muscles are exercised, the stronger, firmer, and fuller they become; and hence it is that we have numerous instances in individuals and animals, of the muscles of one extremity possessing a more than relative strength when compared with the other.

This is well exemplified in the blacksmith, the muscles of whose

right arm are fuller and stronger than those of his left: and in the smaller animals, as in the woodcock, snipe, and partridge. In the two former, the wing being more exercised, its muscles are stronger and tougher; in the latter the thigh, for the same reason, has the greatest power. But to apply this observation to the human body under the influence of disease, let it be remarked that whenever the motion of a joint or extremity is suspended for a considerable length of time, the muscles invariably shrink, and the limb becomes considerably reduced in size; and this is the case when its

motion is suspended from disease or accident of the limb itself, as in disease of the hip, knee, or ancle joint, &c.; or from fractures of either of the extremities; or from disease or derangement of the brain, producing paralysis of an extremity: in the latter case the functions of the limb are interrupted by disturbance of the nervous structure directly supplying it.

Having thus, I trust, satisfactorily proved the *modus operandi* of motion, friction, and exercise in overcoming contractions; I shall next point out the method of applying them, and in doing this it will be

necessary for me to observe some order; I shall therefore commence with the hip joint and proceed downwards. If the hip joint be bent on the pelvis, and retained permanently in that position, (which, as I have before observed, is the most frequent contraction of the hip,) then it is evident that the adhesions are formed in front of the head of the bone; and that the extension of the thigh backwards must be gradually attempted in order to separate or lengthen these adhesions, and set the joint free.

For this purpose, after friction has

been continued for nearly an hour, the pelvis of the patient should be fixed either by an assistant, (which I prefer,) or in the manner adopted in reducing dislocations of the hip. The surgeon, or female rubber, should be seated behind the patient, and take hold of the limb at the ancle, or knee, which is most convenient, and, making a lever of it, should gradually attempt to extend the thigh *on the pelvis*.

This operation should be repeated near the conclusion of every period of rubbing, and must be assisted, when the friction is finished, by the

patient placing the heel to the ground, making, at the same time, frequent efforts to walk, but without the assistance of crutches.

If the thigh cannot be bent on the pelvis, it will then be manifest, that the restriction is situated behind, in which case the pelvis must be fixed and the limb taken hold of at the ancle or knee, and gradual attempts made in the same manner, and with the same caution, to bend it. But, as I have observed before, it must be evident, that adhesions behind the joint are extremely rare.

The head of the bone should also be frequently *rotated* in the acetabulum, or socket.—Friction will be found extremely serviceable after dislocations; also in rheumatic affections of this joint: and especially after fractures near the upper extremity of the thigh bone.

Contractions of and about the hip are difficult to manage, owing to the deep-seated and complex structure of this joint. Under this impression, in the latter part of his practice, Mr. Grosvenor retained but few hip cases, observing, that

these cases were less frequently successful than affections of other joints.

This practice of friction and extension should never be adopted whilst the hip joint is under the *influence of inflammation.*

It should not be thought of when a scrofulous joint has suppurated, and portions of bone have exfoliated.

Neither is it admissible when anchylosis is going on, as it will disturb the reparative process.

Under either of these circumstances it will produce irreparable mischief.

Surgeons should be careful, during disease of any of the joints, to retain them in that position in which, in the event of anchylosis taking place, they will become most useful; therefore the hip joint should be kept bent forwards, and carefully retained in that situation, as in this position it will be most serviceable.

In most fractures of the thigh bone, especially when the limb is much shortened, friction will be found extremely beneficial in promoting the

absorption of effused lymph, which has agglutinated the fibres of the muscles.

When the ligament of the patella has been ruptured, and after it has united, it will remove the extreme lameness and rigidity which usually succeed this accident.

Of the Bursæ Mucosæ surrounding this joint.

The structure and use of the bursæ mucosæ are so well understood, that it is unnecessary for me to enter into a minute description of them; but, as they are intimately connected with

the joints and their diseases, it will be expected that I should take some notice of them ; and this is the more necessary as their situation close to the joints renders the diseases of the two cavities liable to be frequently confounded with each other, a circumstance productive of very serious consequences.

I have, therefore, at the conclusion of my observations on each joint, added a short description of the bursæ mucosæ situated around it, and in so doing I have followed the arrangement of Monro, whose valuable work on the joints I found of

great service to me whilst examining these cavities. Indeed the description of the bursæ may be considered as an epitome of his valuable work.

The bursæ situated in front of the hip joint are several small ones around the great trochanter, and a very large one situated between the tendon of the gluteus maximus, and vastus externus.

Those on the back of the hip are, one between the obturator muscle, and ischium; an oblong bursa situated between the obturator internus, gemini and capsule of the joint;

a larger one situated between the tendon of the gluteus maximus, and root of the trochanter major; (loose cartilage has been found in this bursa:) and also several smaller near the tuberosity of the ischium.

On Contractions of the Knee Joint.

The knee joint, from its situation and complicated structure, is more liable to accident and disease than any other joint in the body. It is frequently dislocated; its articulating surfaces are sometimes fractured; it is subject to a morbid increase of

its synovial fluid, termed hydrops articuli; its cavity is liable to be penetrated by cutting instruments, which produce violent inflammation, and occasion pedicles of coagulated lymph to be effused, which, on being detached, become what are termed loose cartilages, occuping the cavity of the joint, which impair its functions and produce lameness, and the removal of which is attended with imminent hazard of the patient's life;* blood is sometimes effused into its cavity; and lastly, it is fre-

* This has been found so frequently the case, that the most eminent surgeons in the metropolis decline removing them.

quently the seat of that most destructive disease, white swelling. All or most of which diseases leave its functions impaired, and the joint itself the seat of contractions.

It is not necessary for me to enter into the treatment of this joint whilst under the influence of inflammation and its immediate consequences, as this is well understood already; I shall therefore keep close to my subject.

Supposing then that all excitement and inflammation is subdued, but that the joint is contracted, I

will now proceed to point out the mode to be adopted for its cure; and afterwards add a few cautions when it is attempted, which may be found advantageous.

If the knee joint cannot be straightened, it must be obvious that the confinement or adhesions are situated behind, that is, at the back of the joint; and that these prevent its extension. Friction is to be made use of in the manner previously described, and during the process the surgeon is to take the limb at the ancle, and, whilst the thigh is kept down by an assistant, he is forcibly,

but gradually, to attempt its extension; and this must be repeated daily several times during the process. The instant the rubbing is discontinued, while the limb is warm, and the muscles are relaxed, the surgeon must insist on his patient's attempting to walk, without the aid of crutches; and he must not permit him to desist, even if the perspiration bedews his forehead from the exertion. This, and nothing short of this, will be acting up to Mr. Grosvenor's system.

The intervals of the day are to be occupied by the patient's placing him-

self on a table, swinging the limb backwards and forwards—and at every extension of the limb attempting to bring it more forward. Or the same advantage may be reaped by placing a roller of wood covered with baize under the foot whilst seated in a chair, and rolling it backwards and forwards. In this kind of contraction the friction should be applied principally in the course of the tendons in the ham.

When this system of friction, extension, and exercise, has been regularly and unremittingly persevered in for a month or two, it will generally happen that the motion of the

joint will be considerably improved, and all now required to effect the cure will be diligent perseverance.

Where there is a degree of tightness over the patella, or front of the joint, and the flexion of it is prevented or impeded, it must be evident that the confinement or adhesions are situated in front; and in this case the surgeon or rubber must take the limb at the ancle, *and cautiously, but forcibly*, bend it. The same means must be adopted as in the preceding affection of the joint; but here the friction should be applied more over the front of the joint.

In fractures of bones composing the articulating surfaces of the knee joint, as the patella, head of the tibia, and between the condyles of the femur, the joint should be moved as soon as it can be ascertained that they are perfectly united, lest, from a superfluous deposit of phosphate of lime, or a partial union of the surfaces of the inflamed articulating cartilages, from their long apposition, a stiff joint should be the consequence.

After dislocations of the patella and tibia, when all inflammation has

subsided, and a reasonable time has been allowed for the complete union of the lacerated ligaments, the joint should be moved, in order to prevent lameness.

In cases of hydrops articuli, I have known friction produce sometimes a rapid, at others a more gradual absorption of the superfluous fluid; and where there is a deficiency of this secretion, it also appears to produce, by its stimulating properties, a healthy action in the synovial membrane. At a remote period from inflammation of the joint it is found to be useful in restoring its healthy func-

tions; and, as I have already observed, I have a great opinion of its utility above all other remedies, if used in incipient cases of white swelling before any tendency to suppuration has commenced.

When the knees, from weakness and pressure of the weight of the body, grow out, friction with support will be very beneficial; and in all strains of the ligaments it will be serviceable.

Of the Bursæ of the Knee Joint.

The bursæ in front of the knee

joint are—a very large one situated on the front of the femur behind the extensor tendon of the leg, higher up than the patella: this bursa is frequently distended with fluid, and has been found communicating with the cavity of the joint; an enlargement of it is liable to be confounded with a disease of the joint; but it may be distinguished, first, from its situation, which is above the patella; secondly, on extending the leg and relaxing the ligament of the patella, the tumour will not raise it, which it would if situated in the joint, nor will the swelling project on the sides or edges of this bone:—a large

bursa situated under the ligament of the patella, in front of the head of the tibia. It is very common to find this in female servants, who kneel a great deal, enlarged and containing a considerable quantity of fluid. This, if small, may be removed by friction or blisters; if large, an imperfect suppuration takes place in it, when it may be allowed to burst or be cautiously punctured:—a large one also is situated under the tendons of the sartorius, gracilis, and semitendinosus muscles, just below the head, and at the inner side of the tibia.

Those at the back of the knee

joint are, a large one situated under the head of the gastrocnemius muscle; besides which there are several smaller which sometimes communicate with the joint.

In all accidents and inflammatory affections of the knee joint, the surgeon should scrupulously endeavour to keep the knee straight, since, should the joint become anchylosed, the limb will be found extremely useful; while in the bent position it will be comparatively useless.

Mr. Grosvenor *rarely* but *occasionally* made use of machinery to

overcome contractions; and it is sometimes not only necessary, but advisable. Such a violent remedy must be used with the greatest caution. He never attempted to make use of it where there was the least disease in the joint, and only in those cases consisting of pure contraction unaccompanied by disorganization. Of the six mechanical powers, the lever and screw seem the best adapted for this purpose.

Of the Ancle Joint.

The ancle joint is covered by the fascia of the leg, and is surrounded

by tendons and strong ligaments. It is destined to support the whole weight of the body, and is consequently subject to dislocations and strains, which not unfrequently render the subjects of them cripples all their days.

Dislocations inwards and outwards are the most frequent, though it may be dislocated forwards and backwards: but as the reduction of these is not difficult and is well understood, it is foreign to my purpose to treat of them.

When the foot cannot be extended

it is manifest that the restriction or adhesions must be situated round the head of the astragalus, in front of the joint. The surgeon must therefore take hold of the foot near the toes, and, while an assistant makes the leg the fixed point, the *former* must forcibly but gradually attempt the extension of the limb. Should the restriction or adhesions be situated at the posterior part of the joint, then the flexion of the limb cannot be accomplished, and in this case the force must be exerted in the opposite direction, namely, by attempting the gradual but forcible flexion of the joint.

As a general rule, the rubbing must be applied most to that part of the joint where the contraction or confinement is situated.

As numerous individuals of both sexes are rendered cripples from strains or injuries of this joint, some of which eventually terminate in amputation, it is necessary for me to notice it particularly. The situation of the parts composing the joint is such, that they are not easily influenced by remedies; and I have rarely found blisters or issues of much service; the latter invariably *accelerate* amputation. But when

the inflammation arising from an accident has entirely subsided, friction is the only remedy that appears to have any influence over, and to reach the deep-seated structures composing this joint: and in those young people whose ligaments are so weak and relaxed, that the bones composing the joint are not retained in their natural perpendicular situation; united with mechanical support, as a laced boot, or an iron, it will be found the most efficacious remedy for correcting these deformities. In the humbler walks of life, boys are sent early to the plough, before the ligaments of the knee and ancle joints have

strength or firmness to support such laborious exercise; the consequence is, some of them become knock-kneed, or their feet turn out. And in these cases rest and friction should be resorted to.

It is universally acknowledged that fractures of the leg situated close to the malleolar extremities of the tibia and fibula, are frequently followed by rigidities and lameness: these will be readily overcome by friction and exercise. Friction will be found singularly efficacious after ruptures of the tendo Achilles, or Plautaris muscles:

for the obstinate contraction of, and total inability to place the heel to the ground after this tendon has united, will almost invariably be overcome by long-continued rubbing, exercise, gradual flexion of the ancle, and extension of the knee. But in these cases it must be applied along the whole course of the gastrocnemius and soleus muscles, from the origin of the former from the femur, to the insertion of both into the os calcis.

In that painful rheumatic affection of the plautar aponeurosis, which

many individuals are subject to, it will afford speedy relief.*

In diseases of the ancle joint, the position most favourable for anchylosis is a mid state between flexion and extension.

Of the Bursæ Mucosæ of this joint.

The bursæ, situated at the back of the ancle joint, are—a large one in the course of the tendons of the peronuæi muscles;—another, proper

* When more than one joint is affected, two rubbers ought to be employed, one for each joint; and they should work together, to save time and inconvenience.

to the tendon of the peronæus brevis; —one under the flexor pollicis longus; —one under the flexor digitorum longus communis;—and one under the tendon of the tibialis posticus.

In front of the joint there are three bursæ, which are large;—one under the tendon of the tibialis anticus;—another in the course of the tendon of the extensor pollicis pedis;—and a third for the tendon of the extensor digitorum communis longus.

Besides these, there are several large bursæ in the course of the

flexor tendons in the sole of the foot.

Of the Shoulder Joint.

This is the most moveable joint in the body, and is composed of a ball and socket; the head of the humerus being received in the shallow glenoid cavity of the scapula. It is enclosed by a loose but slender capsule, and is strengthened by the insertion of four tendons, and a ligament which passes from the coracoid process to the acromion. There is also another ligament which passes from the acromion, and is inserted into the capsule; and the ten-

don of the biceps muscle passes through the joint, and over the head of the humerus. It is abundantly supplied with bursæ mucosæ; is extremely liable to accidents, and, from its loose structure, is more frequently dislocated than any other joint in the body. Its functions are liable to be impaired by fractures of the acromion, coracoid process, neck of the scapula, and clavicle; from all of which points, muscles, which are inserted into the humerus, arise.

Fractures of the neck of the scapula are frequently mistaken for dislocations of the humerus, as the

broken neck of the scapula carries with it the articulating head of the humerus, and leaves an immense hollow or cavity under the acromion. But these cases are easily distinguished from each other; for if the elbow of the patient be well supported, the broken neck of the scapula will be immediately replaced, and the cavity obliterated; but if the support be removed, the cavity will be immediately reproduced: whereas in dislocation, the hollow or depression will be permanent till the *head of the bone* is reduced.

After fractures below or at the

neck of the humerus, which barely deserves that name, the motion of this joint is in general considerably restricted. And there is frequently a morbid secretion, and increase of the synovial fluid of the joint, though sometimes it is deficient in quantity; both of which circumstances considerably limit and impair its natural motions. Occasionally a morbid accumulation of fluid takes place in the large bursa mucosa, situated under the acromion, which produces the same effect.

When the head of the humerus has been dislocated a very consider-

able time, and remains unreduced in the axilla, the patient cannot bring his elbow to his side, or elevate his arm to a right angle with the glenoid cavity of the scapula. In this case the head of the bone is confined by adhesions, and the front layer of the capsule has retired on its posterior surface, and the glenoid cavity is nearly filled up.

To attempt reduction under these circumstances would not only be useless, but highly imprudent. Unreduceable cases may be known by the following method. If on using such a degree of extension, beyond which

no prudent man would venture, the head of the bone is not found to move or shift its situation, it is obvious that it is permanently confined by adhesions, and therefore no *future* efforts to reduce it should be made. I was once shown a case where the arm narrowly escaped mortification from the violent and long-continued fruitless efforts to reduce it.

After the union of a fracture of the neck, acromion, coracoid process of the scapula, neck, or upper portion of the humerus, and not unfrequently the clavicle, the patient seldom

possesses the power of elevating the arm from his side. In these cases the friction should be applied to the immediate seat of the accident and the neighbouring muscles; and in the intervals the limb must be taken at the wrist, and whilst the scapula is fixed, it must be rotated in its socket, and gradually but forcibly elevated.

After the complete union of fractures of these parts the joint should be early moved. The patient should also keep the joint in frequent motion by carrying a weight or stick in

his hand when walking, and swing it backwards and forwards.

When there is a morbid accumulation of synovial fluid in the capsule of the joint, it will appear considerably fuller than is natural, and in rotating the bone, it will rattle or crack with an audible noise; but neither of these circumstances must check the continuance of the friction and exercise of the limb. This crepitus, on moving the joint, is also common where the synoval fluid is deficient in quantity, and must be treated in the same way. The same cautions must be observed

in the treatment of this joint as in those previously described.

Of the Bursæ Muscosæ of this joint.

The bursæ situated in front of the shoulder joint, are—a very large one previously noticed, situated under the acromion: this is frequently distended with fluid, and loose cartilage is now and then situated in it, rendering the motion of the joint extremely painful. When this bursa is greatly distended, a partial suppuration frequently happens;—one situated within the sheath of the tendon of the biceps;—one under the

tendon of the subscapularis muscle which communicates with the joint; —one under the tendon of the teres major, and another under the tendon of the latissimus dorsi. Besides these there are several smaller bursæ, in all about eight in number.

Of the Elbow Joint.

The elbow joint is composed of three bones, the ulna, radius, and humerus. The joint performs two motions, *flexion* and *extension*, by the ulna and radius moving on the humerus. *Pronation* and *supination*, by the rolling of the radius in the

cavity of the ulna and on the outer condyle of the humerus.

The whole joint is inclosed in a capsule which arises from the condyles of the humerus, and is inserted into the tip of the olecranon, into the coronoid process, into the edge of the sigmoid cavity of the ulna, and around the neck of the radius. Besides this it has two strong ligaments, the external and internal lateral ligaments. The one arising from the external condyle of the humerus, and terminating on the neck of the radius. The other arising from the internal condyle, and ter-

minating near the coronoid process of the ulna. Both spreading over and strengthening the joint. The radius has also a ligament peculiar to itself, which confines it in its situation whilst it performs its rotatory motion. This ligament arises from the edge of the cavity of the ulna, where the radius rolls upon it. It encircles the radius from one edge of the cavity to the other, and is composed of a thick narrow band of ligamentous fibres, and is termed ligamentum coronarium.

There are also other bands arising from the outer condyle and from the

coronary process, which strengthen the ligament of the radius.

From this description of the joint, it must be evident that the humeral extremity of the radius can be rarely dislocated alone, and when it is, the annular ligament will be ruptured.

The most frequent dislocation of the ulna is upwards and backwards upon the humerus, in which the radius always accompanies it. In this case the patient cannot bend or completely extend the forearm. This kind of dislocation may be speedily reduced, by grasping the

condyle and back of the joint, and forcibly extending the forearm by the wrist. Eight or ten days from the reduction, the joint should be gently moved, as a stiff limb is more apt to follow accidents of the elbow than any other joint in the body. This stiffness is occasioned by lymph thrown out from the surface of the capsule, which confines the articulating surfaces of the bones: if early application for relief is made after this accident, friction and motion of the joint, by flexion and extension, will either separate or elongate these adhesions, and thus restore the use of it. This joint is apt to be impaired

after fractures of the olecranon, from the confinement of the limb in the straight position. These fractures will be found united in about a month, at which period the limb should be bent, and as soon as the tenderness of the joint has subsided, friction should be employed.

When the condyles of the humerus have been fractured and separated, if the joint is not moved early after the union of the bones, a stiff and nearly useless joint will succeed. But this may be easily obviated, when these cases have not been too long neglected, by the application of fric-

tion, and the gradual extension of the limb.

I know an instance of a very respectable young man being rendered a cripple for life from a fracture between the condyles of the humerus; his arm was kept extended, in bed, for a very considerable time. He now does not possess the power of bending his elbow, and his limb is rendered nearly useless, from describing a portion of too large a circle in moving it. From this circumstance, in all accidents where it is admissible, and especially in diseases of the elbow joint, the limb should

be kept bent, as in this position, even admitting that anchylosis takes place, it will be found extremely useful.

After the union of fractures about and below the tubercle of the radius, the rotatory motion of this bone is frequently impeded. And this may be overcome by friction, accompanied by frequent and gradual pronation and supination of the forearm.

Fractures of the upper portion of the ulna are not frequent, but when

they occur they must be treated in a similar manner.

Strains of the ligaments of the elbow joint, must also be treated in a manner similar to those of other joints.

The Bursæ of the Elbow Joint

Are :—one situated between the tendon of the biceps and tubercle of the radius ;—and a smaller one at the back of the joint, situated between the tendon of the triceps and olecranon.

Of the Wrist.

The wrist is a very moveable joint, and is formed by the heads of the scaphoid and lunated bones being received in the great scaphoid cavity of the radius. The end of the ulna has a moveable cartilage covering it, and a distinct capsule, which is very loose, encloses the sigmoid cavity of the radius and the head of the ulna; and thus the radius rotates on the head of the ulna, in pronation and supination of the forearm.

The joint of the wrist has a capsule, arising from the styloid process, and from the heads of the radius and

ulna, which is inserted into the lower row of the carpal bones. Besides this, it is strengthened by ligaments, by the tendons of the fingers, and by the fascia of the forearm.

It will be perfectly unnecessary for me to describe the other bones of the carpus, as, independent of the articulation formed by the os-magnum and lunare, they are all strongly cemented by ligaments.

The most frequent dislocation of the lower part of the radius is forwards. Sometimes it is dislocated backwards.

The bones of the carpus may be luxated from the lower ends of the radius and ulna backwards or forwards; and incompletely inwards or outwards. The dislocation backwards is most frequent.

The strength of the annular ligament, and the great number of tendons and ligaments supporting this joint, most of which must be unavoidably injured in its dislocation, render the joint not only extremely slow in recovering from injuries of this nature, but frequently occasion its remaining stiff and weak ever

after. This we find exemplified even in common strains of the wrist.

After a dislocation or strain of this joint, sufficient time should be allowed for the complete union of the lacerated ligaments, and then the joint should be gently moved; and if subsequently any stiffness should remain, which is generally the case, friction should be employed. Fractures near the lower extremity of the ulna, after their complete union, should be treated in the same manner.

Under the influence of disease, the

wrist should be kept extended, as this is the most favourable position for anchylosis.

After dislocations of the fingers, thumb, or strains of the ligaments and tendons in the palm of the hand, a ball of ivory or any other hard material may be placed in it, for the purpose of exercising the muscles.

If anchylosis is feared, the thumb should invariably be kept extended. The fingers likewise should be extended; but if one only is affected, it should be retained a little bent.

Of the Bursæ situated at the Front of the Wrist.

There are several bursæ of large size situated over the front of the wrist and behind the flexor tendons of the thumb and fingers. Indeed the sheaths of the flexor tendons may be considered as bursæ.

Of the Bursæ at the Back of the Wrist.

The bursæ at the back of the wrist extend farther up the arm on the radial than on the ulnar side. There are two large ones in the course of the extensores carpi radi-

ales muscles, and they are situated in the course of all the extensor tendons of the thumb and fingers. In one instance fifty cartilaginous bodies of different sizes were found in the large bursa of the flexor pollicis. These were evacuated by puncture.

Besides the diseases of the bursæ mucosæ already noticed, it is by no means uncommon, in gouty and rheumatic subjects, for these cavities to be considerably distended with fluid. And in scrophulous subjects, those of the wrist and ancles are filled with a viscid glary mucus.

The latter are apt to suppurate imperfectly.

The opening of a bursa mucosa is sometimes followed by alarming consequences, and on one occasion amputation of the limb was necessary to save the life of the patient.

Sometimes the friction of tendons over a joint, produces a communication with the bursa and cavity of the joint. This happens from the friction of the tendons of the psoas magnus and iliacus internus over the capsule of the hip joint.

Ganglia, which are apt to form at the back and front of the wrist in labouring people, and which are the result of violent strains, are nothing more than an accumulation of fluid in the bursæ. Some surgeons prefer bursting these by a smart rap, but I have generally found them give way to friction or blisters. If they are of long standing, or large, it is better to cautiously puncture them, and keep the joint quiet for a few days.

The presence of cartilaginous bodies in bursæ, may be ascertained by carefully examining them. But

they should not be interfered with unless they restrict the motion of the joint, or create great pain and uneasiness by distending the sac. When this is the case the bursa should be cautiously punctured and the bodies evacuated. The limb should be kept perfectly quiet for several days, lest inflammation supervene. Setons have been used in these cases, but they are followed by so much inflammation, that they are highly dangerous.

The sides of bursæ, particularly those of the wrist, frequently become thick or cartilaginous, and in gouty

people calcarious deposit may be observed.

Lastly, I have to consider diseases of the spine, and accidents to the immense mass of muscles situated on each side of it.

After the union of fractures of the vertebræ, when paralytic affections are left behind; in some chronic diseases of the spine, and in that painful rheumatic affection amongst the muscles, termed lumbago; after strains in the loins, produced by lifting great weights; and in stiffness or rigidity of the muscles of the back,

following the complete union of extensive sabre-wounds, Mr. Grosvenor found friction highly beneficial.—Applied for three hours daily, and unremittingly persevered in, it must be allowed to be a powerful remedy. It restores and increases the rapidity of the circulation, and produces a great degree of heat in the joint or part affected. It promotes the absorption of coagulable lymph and effused fluids, thereby overcoming rigidities and contractions and restoring the parts to their natural state and healthy functions. It evidently appears to have the power of relaxing the muscles and parts to

which it is applied, and of allaying irritation, cramp, or spasm ; but it is indispensable that motion and exercise should be combined with it. One will not do without the other, therefore both cannot be too strongly enforced.

The joint or part should be rubbed lightly at first, as the integument will feel sore, but this soreness, on continuing the friction, will gradually subside ; sometimes it will produce small pimples at the commencement.

In order to give my reader some idea of Mr. Grosvenor's character

and perseverance, I must remark that he would frequently observe to his patients "your own constant exertions are necessary as well as mine." He occupied a great deal of his leisure time in walking with his lame patients, that he himself might judge of the exertions they made: and the assistance of a crutch or stick was rarely allowed by him.

The use of mechanical powers in overcoming contractions of the joints was well understood and practised by the ancients, but, for the wisest of all reasons, namely, the mischief that

they occasioned to the soft parts surrounding the joint, they soon became neglected. However, as the use of them is revived, and I have found them occasionally of considerable service, I shall offer a few remarks on the consequences that frequently follow their application.

A very common effect is the production of such a degree of inflammation in the ham and soft parts surrounding the joint as to oblige the operator to desist; and as the extension of a contracted joint by an instrument occupies as much time as extension by friction and manual

means, if a joint cannot be extended by such a degree of manual force as is prudent to employ, I should be extremely cautious in adopting mechanical violence.

It frequently happens that a joint extended by mechanical means re-contracts. This I never knew happen after extension by friction and manual force.

The extension of a joint should never be attempted by mechanism, but in those cases where the contraction is pure, that is, unconnected with anchylosis or other disease of

the joint, as caries, or dislocation, &c. Whenever it is attempted, it should be preceded by friction for a week or two, and effected in the most gradual manner imaginable. Lastly, the instrument should be worn several months or even a year after the contraction has been overcome.

Of the inutility of dividing the Flexor Tendons of the Fingers for the purpose of overcoming Contractions of them.

The surgeon who attempts this operation will frequently be disappointed by finding the joint anchylosed. (The joints of the fingers are

more subject to anchylosis than any other joints, being more exposed to accident.) But even admitting, for the sake of argument, that this is not the case, will the operation be of any service? Certainly not. For supposing the tendon to be divided, and that the finger can be kept perfectly straight, the flexor tendon has no longer any power over the joint, and the consequence is, the finger becomes permanently extended, and thus the last evil is as bad as the first.*

* I have known individuals who have found such inconvenience from a finger having become anchylosed in a straight position, that they have submitted to its removal.

There is a constant propensity in every part of the human body, when divided, to approximate itself, and more particularly where there has been a great loss of substance. For example, when, from burns or scalds in the neck, a great portion of integument has been destroyed; the parts in healing approach each other, so that the chin is made to come nearer, and in some instances is nearly tied to the breast: and as nature does not possess the power of reproducing integument, this inconvenience, notwithstanding the elasticity of the skin, cannot be altogether obviated. This is the true reason why the sub-

sequent division of these contractions, instead of being attended with success, aggravates the misfortune it was intended to alleviate; but I trust I have already said sufficient to prevent the performance of this unphilosophical operation on the joints.

It occasionally happens that in consequence of violence to, and unnatural positions of a limb, that the tendons of muscles are dislocated. This now and then happens to the fibres of the latissimus dorsi at the angle of the scapula; and I see no reason why it should not to the tendons in other parts of the body. In

these cases the muscles of the part or joint affected should be relaxed, and friction, for an hour or more, should be performed, and the limb gently moved in a variety of directions, during which process the tendon or muscle will generally glide into its natural situation.

I met with a very ingenious gentleman, the motion of whose knee joint was considerably restricted, and at one part of the joint a cartilaginous body projected. His case was so novel, that he was at the pains of having the knee joint examined, and described to him, and from this ex-

amination he became convinced that the semilunar cartilage was displaced, and in this opinion he was supported by an eminent surgeon in the metropolis. After reading the late Mr. Hey's observations on the joints, he directed his knee to be forcibly bent, which had the effect of replacing the cartilage and restoring the use of his limb.

Of Distortions.

As four cases of distortion of the feet at the ancle were lately the subject of my attention, I cannot refrain from noticing the subject, particu-

larly as it is connected with the joints. Scarpa has given a plate of an instrument for correcting deformities of this nature, and several very able men have written on the subject, but, notwithstanding this, such cases are greatly neglected.—The most common distortion of the ancle is that in which the toes are turned inwards, and the astragalus is turned outwards to the maleolus externus; so that the sole of the foot becomes situated nearly upwards. This, on dissection, will be found the exact situation of the bones.

The four cases to which I have al-

luded were those of infants. The ligaments of the joints were greatly relaxed, but by gradual and continued force it was by no means difficult to place them in their proper position, in which I retained them by means of a thin plate of iron, to which a moveable pivot and screw were connected, and the whole attached to a stiff boot. The screw regulated the force at pleasure. This instrument is so similar to Scarpa's, that his drawing will give a tolerably accurate idea of it. Any ingenious mechanic is capable of executing such an instrument. In the use of it, friction should precede its application, and

the joint should be covered with strips of adhesive plaster and a bandage.

The kinds of distortions vary so much, that no one instrument can be applicable to all cases; but as in every town an ingenious mechanic is to be found, it is by no means difficult to obtain the object of our wishes.

I shall conclude these remarks on friction by relating a recent case or two of its efficacy.

Robert Jarvis, ætat. 40, or thereabouts, fractured his clavicle and acromion by a fall. When I first saw him, which was several months after the accident, the bones were perfectly united; but the union of the clavicle was very irregular, and the bones overlapped each other. He had not the smallest use of his arm, nor could he even get his elbow from his side. On his admission into the Infirmary, friction was commenced, and at first he was rubbed half an hour three times during the day. Very little improvement could be perceived during the first three

weeks, notwithstanding the period of friction had been considerably increased. I therefore commenced rotating the bone briskly in the socket, and gradually, but forcibly, elevated his arm from his side and drew it backwards and forwards; and this exercise I directed to be repeated several times daily. From this time his arm began to improve, and in a few days he could raise it above his head, and shortly afterwards he recovered the entire use of it. This case clearly proves the combination of exercise absolutely necessary.

An amiable young lady was rendered lame by a large collection of fluid in the cavity of the knee joint (constituting complete hydarthros.) Several of the most eminent surgeons in the metropolis were consulted on this case, which was eventually completely cured by friction and exercise unremittingly persevered in for a year and a half. This was a case under the immediate care of Mr. Grosvenor, and one in which he took great interest.

Monro, speaking of dropsy of the knee joint, observes, that out of fif-

teen cases, eleven were cured, and these principally by blisters and liniments,—two continued, and two died, but the latter were complicated with white swelling.

John Candwell, ætat. 50, of Milton, Berks, fractured his thigh a year since, and from being unfortunately attended by two surgeons who differed in opinion as to the best position for a fractured thigh, was rendered a perfect cripple. One surgeon placed the limb in a straight position, and after seventeen days had elapsed, the other disturbed the bones by putting it in a bent one.

The limb was several inches shorter than the other, from the union taking place whilst the bones overlapped each other, and on my first seeing him he had very little power over it. He has adopted the system of friction and manual extension for nearly a month, and can now walk without the assistance of a crutch, and thinks himself so greatly improved that he has expressed a wish to return home.

A young woman was rendered a cripple for several years, from a violent strain and rupture of the ligaments of her ancle joint; for which I directed friction and extension to

be adopted, as in the previous cases. On making my visit one morning, as usual, I was accosted by the female rubber, who exclaimed "Sir, I have slipped the bone into its place." The fact was she had snapped a band of organized lymph, and thus set the joint at liberty. From this period the young woman had no return of her lameness.

A gentleman of the University injured his knee three years since, which rendered him so extremely lame at intervals, that he was induced to consult me. The joint

was increased in circumference, and there was a considerable accumulation of fluid in the bursa, situated beneath the tendon of the extensor muscles. Pressure on the patella occasioned a dull aching pain. He did not possess the power of extending his joint, and the weakness of it frequently occasioned his falling to the ground, on making an effort to walk.

He was rubbed regularly for three hours daily, for nearly three months, at the expiration of which period, he could extend the joint without any

assistance, and was so far recovered, as to be enabled to take walks into the country without inconvenience.

Elizabeth Flaxman, ætat. 25, came into the Infirmary on the 21st of April, 1824, with the intention of having her left thigh removed, on account of a disease of the knee joint, which had existed nearly three years. She had no power over the limb, and could not walk with the assistance of crutches. The knee joint was considerably swollen, and the head of the fibula was much larger than natural. The muscles of the leg and thigh were subject to cramp and

spasm, whenever she attempted to move the limb. I dissuaded her from having the joint removed, as I thought it a very proper case for friction and exercise. The joint was accordingly rubbed for three hours daily, and she was directed to walk about the ward, assisted by a female on each side to prevent her falling. She persisted in this plan for four months, at the expiration of which period she could walk without assistance, and was discharged.

A lady fell down in Drury-lane Theatre, and severely injured her knee; she was confined to her

room several days, and soon after returned to her residence in the country. About a month afterwards I was consulted. There was a considerable quantity of fluid in the joint; the bones grated on moving them, and she complained of a dull, aching pain. I pointed out the absolute necessity of rest, and directed soothing applications to the joint; these were continued for several months, but no great advantage being derived, except an abatement of pain; a blister was directed, after which the soothing system was continued. The case still continuing tedious, (as most joint cases are,) I

recommended another opinion to be taken: it was therefore drawn up and submitted to Sir Astley Cooper, who confirmed the system hitherto pursued and directed a continuance of it. The ung. antim. tart. was next applied to the joint, and continued for several months; after which various applications were made use of as occasion required. The joint, on admeasurement, was an inch larger in circumference than the other; the bones still grated on moving them; and the muscles were shrunk considerably. After being confined to her bed nearly three years, she was enabled to take a

journey to London, to consult Sir A. Cooper, who directed the extr. belladonnæ to be applied to the joint, and rest still to be persevered in. This plan was likewise continued for several months, at the expiration of which period she had not the smallest power in the limb, and was accustomed to compare it to a log of wood.

Finding that we gained no ground, and as the joint was tolerably free from pain, I next directed friction to be employed: at first the joint would not bear it longer than twenty mi-

nutes three times a-day: at length it could be endured for three hours daily, (an hour at each time) during which process the limb was frequently but cautiously moved. I then directed that an attempt to walk should be made, but with the assistance of crutches. After the friction had been continued about three months, there were evident symptoms of amendment. I next directed the crutches to be entirely thrown aside, and prevailed on the lady to endeavour to walk, with the assistance of an arm on each side. This plan was persevered in for eight months, during

which period her improvement was progressive, and she can now walk without assistance.

This is a very valuable case, as it points out the propriety of applying the remedy at the proper stage of the disorder. Had friction been employed previous to the subsiding of the excitement of the joint, the limb, in all probability, would have been sacrificed. I cannot dismiss this case without observing, that this lady's recovery is, in a great measure, to be attributed to the patience and fortitude with which she endured confinement to her bed for nearly three

years. If persons suffering from affections of the knee joint, arising from accidents, would in the early stage of the complaint follow her excellent example, these diseases would no longer be an opprobrium to the profession, and but few limbs would come to the knife.

At Mr. Grosvenor's death I engaged his rubbers, who, from twenty years' experience, have acquired a mode peculiar to themselves, and which I have endeavoured to describe as accurately as I could, but which it is absolutely necessary to witness, in order to understand.—

When a patient cannot conveniently leave his home, I am in the habit of permitting a rubber to go into the country for a short time, in order to teach some one of the domestics the method. Three months may be considered a fair trial of the remedy: if at the expiration of this time no improvement should have taken place, the joint, in all probability, is anchylosed, and consequently does not admit of cure by any means.

Observations on Scrofula, as connected with the Joints.

It appears an opinion confirmed by experience, that white swelling of the knee joint, consumption, and dis-

ease of the hip joint, are one and the same disease, that is scrofula, and that it is entirely a constitutional disease.

At present we are acquainted with no specific for its cure; still its ravages are greatly to be arrested by proper constitutional treatment. I have seen limbs in young subjects so frequently condemned to the knife, which have so far recovered as to be useful for the common purposes of life,* that it should be admitted as an

* This observation I have found more frequently exemplified in children. I have likewise remarked that amputation is more apt to be followed by disease in some other joint in them than in adults.

undeviating rule never to amputate a scrofulous limb, till the irritation from it is so great as to endanger the life of the patient, and even then the surgeon will be often greatly mortified; for after amputation, the disease frequently attacks the lungs, or some other important organ, and destroys the patient. It appears better to support the system, and allow the disease (if I may use the expression) to wear itself out on the part, than to amputate the limb too early; for where there is a strong scrofulous diathesis the removal of the limb will not arrest the progress of the

disease; and this opinion has been confirmed in several cases lately.

The first I shall mention was that of a poor boy, who had his leg amputated for a disease of his knee joint. The complaint afterwards affected his lungs, and he died. The next was that of a young woman, who had her leg amputated for a disease of her knee joint; her hip became affected, and I believe she is dead. The third was that of a boy who was under my care, and afterwards had his arm amputated in the Infirmary; he is dead also.

It is by no means uncommon to find a diseased joint and consumption existing in the same individual; the latter complaint may be in its infancy, or in its more advanced stage: if in its infancy, it may be detected by observing the inspirations, and noticing the pulse: the inspirations will be short, owing to the lungs not admitting of their proper proportion of air, and a deep inspiration will be followed or attended by a cough or pain in the side; the pulse will be much quicker than natural. In its more advanced stage, the pulse in an adult will vary from a hundred and ten to a hundred and twenty;

and in addition to the usual hectic symptoms, the purulent expectoration will be profuse, and the limb will be swollen. In the latter case to think of amputation would be the height of imprudence. I was once consulted on a case of this description, and pointed out the impropriety of an operation; the limb nevertheless was amputated, and the patient died three days afterwards. On another occasion, where I declined operating, the limb was removed, and the patient died on the operating table: both these cases were complicated with consumption.

I mention these unfortunate events to caution young practitioners, and to induce them to give a guarded prognosis, even in those cases that are apparently favourable for an operation; for the disease being a constitutional one, the removal of a part can have little influence in correcting the whole: it would be as reasonable to expect the process of fermentation would be checked by the removal of a portion of a fermenting mass. The older the patient is, then, and the freer from other scrofulous affections, particularly the lungs, the greater will be the probability of success, and vice versa.

There are certain laws in the animal economy, which, from our present imperfect knowledge, we cannot satisfactorily explain. For instance, if two febrile or eruptive diseases occur at the same time in the same person, the progress of one will be arrested during the progress of the other. Again we have metastasis in gout, and it is a common observation that the appearance of gout in an extremity instantly relieves a corresponding set of gouty symptoms existing in some important organ. Also in cases of affection of the knee joint, wherein not the smallest disposition to disease in any of the important organs has

betrayed itself previous to amputation, the instant the limb is removed, a train of organic irritative symptoms is frequently set up, which eventually brings the patient to his grave.

Scrofula is a constitutional disease, peculiar, almost, to youth. Four-fifths, and indeed a greater proportion of persons afflicted with scrofula, are young people; hence it appears that there are certain changes in the system produced by age, which have the effect of arresting, and, I may go so far as to say, almost annihilating this destructive complaint.

The examples are so frequent of children having scrofulous affections of the eyes, glands of the neck, messentery, and joints, which are arrested during the period of childhood, and who have no other scrofulous affection during the whole course of their lives, that it is needless to enumerate them.

Seeing then that scrofula is a disease peculiar to youth, and that, when discovered in its infancy, it is to be arrested by proper constitutional treatment; observing that amputation is generally followed by disease in some other important organ,

which is destructive of life; and that this disease existing in a joint, has the effect of diverting it from more important organs, we cannot but condemn, in the strongest possible terms, the general amputation of limbs, and should direct our attention principally to steer our patients through this important period of their lives, until the ravages of the complaint are no longer to be apprehended. But there are no general rules without exceptions, and we frequently err by running into extremes. There are many cases in which amputation is absolutely necessary to

save or even prolong the life of the patient. As when the disease has existed for a long time in the knee joint of an adult, and it is evident, from the long confinement and accumulation of matter, that the structure of the joint is disorganized; when his appetite fails; when his nights become sleepless, and his pulse is hardly to be counted—the limb must be amputated, or the life of the patient will be forfeited: and in these cases I prefer operating whilst the patient has strength. I therefore do not wait till all these urgent symptoms arrive, and I have

found the variation of the pulse a good criterion for my decision.

I have frequently attempted to save a limb by a free division of the integuments ; but in protracted cases the mischief done to the joint is so great, that although a considerable quantity of highly putrified matter be discharged, the limb will not be saved. This operation is more likely to succeed when performed early.

I have generally found it prudent to defer operating on children, as long as consistent with safety ; as

in them nature's means of reparation are greater; and I have met with numerous instances where several joints in the same individual were affected, and bone has exfoliated, and yet the little patients have recovered.

Having proceeded thus far, a question naturally suggests itself. Why is scrofula affecting a knee joint allowed to commit such ravages on its structures as to require amputation?

Because it is not treated as when occurring in other parts of the body.

An abscess of this nature seated

in the arm, forearm, back, underneath the fascia of the thigh and leg, although tedious, invariably does well, and without much, if any, destruction of parts, and the rapidity of its healing is, in some measure, proportioned to the facility with which it can approach the surface. Therefore, one situated beneath the fascia of the thigh and leg, will not heal so speedily as one in the back, &c. and this applies more particularly to the knee joint, which is covered by a fascia, defended by the tendons of the leg, and surrounded by strong ligaments. This structure fully ac-

counts for the irreparable mischief, which matter confined under such circumstances is capable of effecting. Nature has here a task to perform which she is unequal to, for these ligaments, these tendons, this fascia, perhaps all, or a part only of them, according to the situation of the matter, must be torn asunder by progressive absorption, before it can approach the surface; and when it does, the opening is so small as not to admit of its free discharge.

This process occupies the space of several months, at least; are we then

to be astonished at the mischief occasioned by the confinement of scrofulous matter for several months, nay even a longer period? For in many joints, which eventually come to the knife, it has been confined for a year or even two. Here I must beg leave to repeat the question: What mischief is not matter, confined for six, twelve months, or even two years equal to? It would be matter of astonishment to me, if such joints did not come to the knife.

The matter of a scrofulous abscess is very offensive, and readily putrifies. Dissection of joints proves it capable

of destroying the animal fibre, for in many instances the muscles, tendons, and ligaments are no longer cognizable.

A prevailing notion exists, that in white swelling, the joints and heads of the bones are the parts primarily diseased; but during a period of several years' hospital practice, where I have had an opportunity of examining a great number of joints amputated on account of white swelling, the mischief about the soft parts has been so extensive, that they must have been, in most instances, the primary seat of the mischief; whereas,

the injury to the cartilages and heads of the bones, was comparatively of little extent.

This erroneous opinion of the true seat of the disease has led to a corresponding error in the treatment of it; for even admitting that there are instances of the disease commencing in the bones or joints, as in the majority of cases it begins in the soft parts, the instances of cases treated improperly must be more numerous.

If these premises be true, the disease vulgarly called white swelling

becomes reduced to a scrofulous abscess, the intractability of which arises from the ligamentous, tendinous, and fascial structure of the parts surrounding and confining the matter.

The effect of putrid scrofulous matter is, as I have observed before, to corrupt the parts in contact with it, to destroy the animal fibre, to excite inflammation, and thus glue together structures which ought to be distinct, for the due performance of their respective functions; and it is in this manner that the mechanical power of the joint is de-

stroyed. Lastly, by its absorption, united to the excessive irritation, a species of typhoid fever is produced, which destroys the patient.

It may be asked, Why is the joint, in cases of white swelling, generally found in a state of flexion?

This position is assumed, at first, partly from convenience, as the patient is incapable of supporting his body on the diseased limb, such an attempt being productive of the most excruciating pain arising from the pressure of the heads of the bones against the tender and inflamed in-

teguments; subsequently, the parts, from inflammation and partial destruction, become so glued together, that that which was accidental and temporary becomes eventually obdurate and confirmed.

The local treatment that I have found most efficacious in joints that have suppurated, and which is founded on the foregoing principles, consists of a division of the integuments and fascia, so as to give a free and early exit to the confined matter before the bones and more material structures of the joint have suffered. The situation of the incisions

must depend on the situation of the abscesses; though they may be made in the knee joint with the greatest safety in the course of the tendon of the biceps, on the outer side, and in that of the gracilis, sartorius, semi-tendinosus, and semi-membranosus muscles on the inner side of the joint.

If the practitioner is timid, an eschar instead of an incision may be made over the site of the induration, and when the slough has separated the wound should be deepened daily with the kali purum, till it opens the abscess; and during the treat-

ment the joint should be invariably kept in the position most favourable for anchylosis.

Of late a communication has been established between the Oxford Infirmary and that of Margate, for the benefit of patients afflicted with scrofula. Sea bathing has frequently been found efficacious in scrofulous affections of the joints, but at present I am inclined to think we have rather overrated the power of this remedy.

Out of sixteen cases sent from this hospital to Margate last season, (which it is but fair to observe was a

very unfavourable one), but one scrofulous case, and that a young woman with a diseased ancle-joint received benefit; another with a disease of the knee joint, far advanced, died there, and it is supposed this patient would have been saved by amputation.

This points out the impropriety of sending cases far advanced to the sea.

I shall conclude my remarks on sea bathing, by observing, that I have seen instances of its efficacy in joint

cases: but like all other remedies it is not infallible.

For further information on this subject, I must refer my readers to a very good work written by Dr. Russel, on the efficacy of sea bathing; as well as to the Reports of that valuable institution, the Margate Sea Bathing Infirmary.

A Case of Inguinal Aneurism, in which the External Iliac Artery was tied.

I shall relate this case as taken by Mr. Hagley, the gentleman in attendance at the Infirmary, who very

kindly spared me the trouble. It may be interesting to some of my professional brethren, which has induced me to add it to this work.

Oct. 25th, 1820.—Charles Bradley, aged about sixty, of spare habit of body, but rather muscular, formerly a soldier, was brought to the Infirmary a few days since, on account of a femoral aneurism, which has been of about four months' duration, and as the patient thinks, was produced by hay-making. The tumour is of considerable size; painful to the touch; feels rather hot; a peculiar whizzing noise is perceptible

at its lower part; slight œdema of the limb; pain has been very great for several weeks, so as to prevent sleep; very little change of temperature. Under all these circumstances it was judged proper not to delay the operation, which was performed this day.

The operation-room was crowded to excess, as the novelty of the case had attracted many of the professional gentlemen from the neighbouring towns.

Mr. Cleoburey commenced the first incision just above Ponpart's

ligament, and carried it upwards about four inches in length, through the integuments of the abdomen. This stroke of the knife might be said to have almost executed the operation, for the tendon of the external oblique muscle was exposed and partially divided by it. This and the edge of the internal oblique and transversalis muscles were next divided, and he now cautiously separated the peritoneum and laid hold of the artery between his finger and thumb, and, with the greatest facility, passed a strong single ligature around, and secured the vessel.

The instant the vessel was tied, the pulsation in the tumour stopped.

The man did not lose more than an ounce of blood during the operation.

Three hours after the operation, the pain still considerable in the tumour, and generally over the whole extremity; the temperature of the limb reduced. Six hours after, the pain much diminished; the temperature of the limb increased; pulse one hundred; says that he feels comfortable. He is placed on his back, the knee bent and supported

by pillows, the foot raised; the whole limb enveloped with flannel.

Oct. 26.—Has passed a bad night, with occasional delirium; pain has been very considerable in the knee and leg. Slept about four hours this morning; pulse about one hundred and ten. At eight o'clock this evening, pain still considerable; pulse ninety-eight; skin not particularly hot; limb of the regular heat, except at the toes; no diminution in the tumour; he does not object to its being touched now, which he would not suffer before; no discolouration of the skin; the thigh and knee

warmer than the leg; no feeling in the foot; no pain about the abdomen. The man considers himself quite as well as could be expected, and thankful for what has been done for him.

Oct. 27. — Suffered very much last night from the pain in the leg, which seems to be caused by veinous congestion; tumour appears less tense; the leg still very cold, with loss of feeling; the skin mottled; pulse about one hundred; bowels have been relieved by the use of castor oil. The position of the leg has been changed, which has given ease.

Oct. 28.—Appears better; had a very good night; leg and foot warm, but there is considerable ecchymosis over the fore part of the leg; the tumour much softer; pulse ninety-eight; ordered vini ℥ iv. quotidie.

Oct. 30.—There is sphaceleus on the side of the leg towards the ancle; it is hoped that it may be only superficial; the leg and foot warm; the wound, which was dressed for the first time, looks very healthy; pulse one hundred; appetite good; continue wine; meat for dinner. Bark, with ammonia and aromatic confection.

Nov. 2.—The mortification has not extended; there was diarrhœa last night and this morning, which is now relieved; appetite and spirits good; pulse firmer; tongue clean. It appears probable should he survive that the foot will be lost.

Nov. 8.—Has continued much the same as at the last report, till last night, which has been passed very restless, in consequence of the violent pain in the calf of the leg, which looks very bad, evidently tending to gangrene; pulse one hundred; the wound looks healthy, and discharges good pus; the foot is gangrenous;

he takes opii. gr. i. 6tis. horis, wine, &c. He dislikes the bark.

Nov. 16. — Continues tolerably well; sleep as well as can be expected; appetite good; pulse seventy; bowels regular; there is a line of separation just below the knee; the tumour diminished; the ligature not yet come away, but the wound healed round it.

Nov. 27.—The line of separation having been completely established for some days, with healthy suppuration, and nothing particular to forbid the removal of the mortified limb,

the amputation was performed at the edge of the sound parts, which reached about a hand's breadth below the knee: the peronæi muscles with part of the tibialis, being the only parts supplied with blood: several small branches were tied, and but a small quantity of blood lost at the time. The tumour not much decreased, but become more condensed. Ligature not yet come off. The man has suffered much inconvenience and loss of sleep from being compelled to remain so long in an uncomfortable posture; it is therefore hoped, that independent of other reasons, he will stand a better chance of re-

covery. He bore the operation quite as well as could have been expected.

Nov. 28.—Continues quite as well as could be expected; he says that he is a little shaken by the operation, but no unpleasant symptoms have followed it.

Dec. 4.—He continues tolerably well; discharge is copious but healthy; surface of the stump looks clean. He has complained for a day or two of considerable pain in the heel, which produces cramp in the calf of the leg; this at times has prevented sound sleep, and he is weak in con-

sequence of this circumstance. He has a dislike to medicine, and has only taken a grain of opium three times a day for some time; but he has been urged to take a mixture of bark with the compound tincture, and a small quantity of diluted sulphuric acid.

He continued gradually to recover till April 22nd, when he was sent home for change of air; he having had cough with purulent expectoration for some weeks. The stump nearly healed, several bits of bone had exfoliated, which had kept up some degree of irritation, and had

prevented the healing of the stump; the ligature had not come away at the time of his leaving the hospital, but as far as the operation went it had perfectly succeeded.

July, 1821.—He is still living, but described as very ill with bad cough, &c. but I could not hear if the ligature had yet separated.

June, 1822.—Continues to enjoy tolerable health. Occasional exfoliation from the end of the bone.

I find that the ligature came away soon after his discharge from the hos-

pital; and he now enjoys very good health, notwithstanding he has been accustomed to drink a great deal of spirits daily.

Here Mr. Hagley's statement closes. On the 25th of July, 1824, nearly four years after the operation, the poor man died. I examined his body, and the following is a correct statement of the parts as they presented themselves on dissection.

The external iliac, at the part where the ligature was situated, had degenerated into an impervious cord: the vein was situated on its inside,

and the anterior crural nerve on its outside; both of which were perfectly sound. The femoral artery was impervious (except where the epigastric was given off) to the point where it gave off the profunda; but from this point it was pervious for about an inch. The profunda immediately divided into three large branches, which were the vessels that anastomosed with the gluteal and isciadic arteries, and supplied the limb with blood. The femoral artery from this point was again impervious and converted into a solid cord to its termination in the ham. There were very little remains of the aneurismal

sac; and the stump below the knee was sound. Above the situation of the ligature, and at the point where the common iliac bifurcates into the external and internal iliac arteries, a hard tumor, about the size of an egg, was situated; this was organised, and was the remains of the plug or clot which had sealed the vessels. Two large arteries, the gluteal and isciadic arteries, were given off within the pelvis, just below the induration, and were the arteries which must have anastomosed with those of the profunda for supplying the limb with blood. The common iliac and the descending aorta were sound; and

there were no appearances of any other aneurism. The obliteration of both the iliacs confirms the fact that the common iliac may be tied and the limb still supplied with blood; for in this instance the circumflex arteries of the profunda must have inosculated largely with the branches of the internal iliac; and the epigastric with the internal mammary and lumber arteries: and from the profunda the perforating branches must have descended to supply with blood the inferior part of the limb. The lungs were extremely small and greatly diseased, and in the right lung was a large abscess, which was

the immediate cause of death. The pericardium adhered to the heart, and the ventricles were large and thin: the arch of the aorta was ossified, and the liver was large but healthy. From this dissection it is clear that, independent of the disease of the lungs, the man might have lived for years. The parts which were removed from the body are in my possession.

THE END.