

**A practical treatise on morbus coxarius, or, Hip-joint disease : showing the advantages to be derived from a system of mechanical management, for the prevention and cure of the contractions of the limb. With cases and illustrations / by William C. Hugman.**

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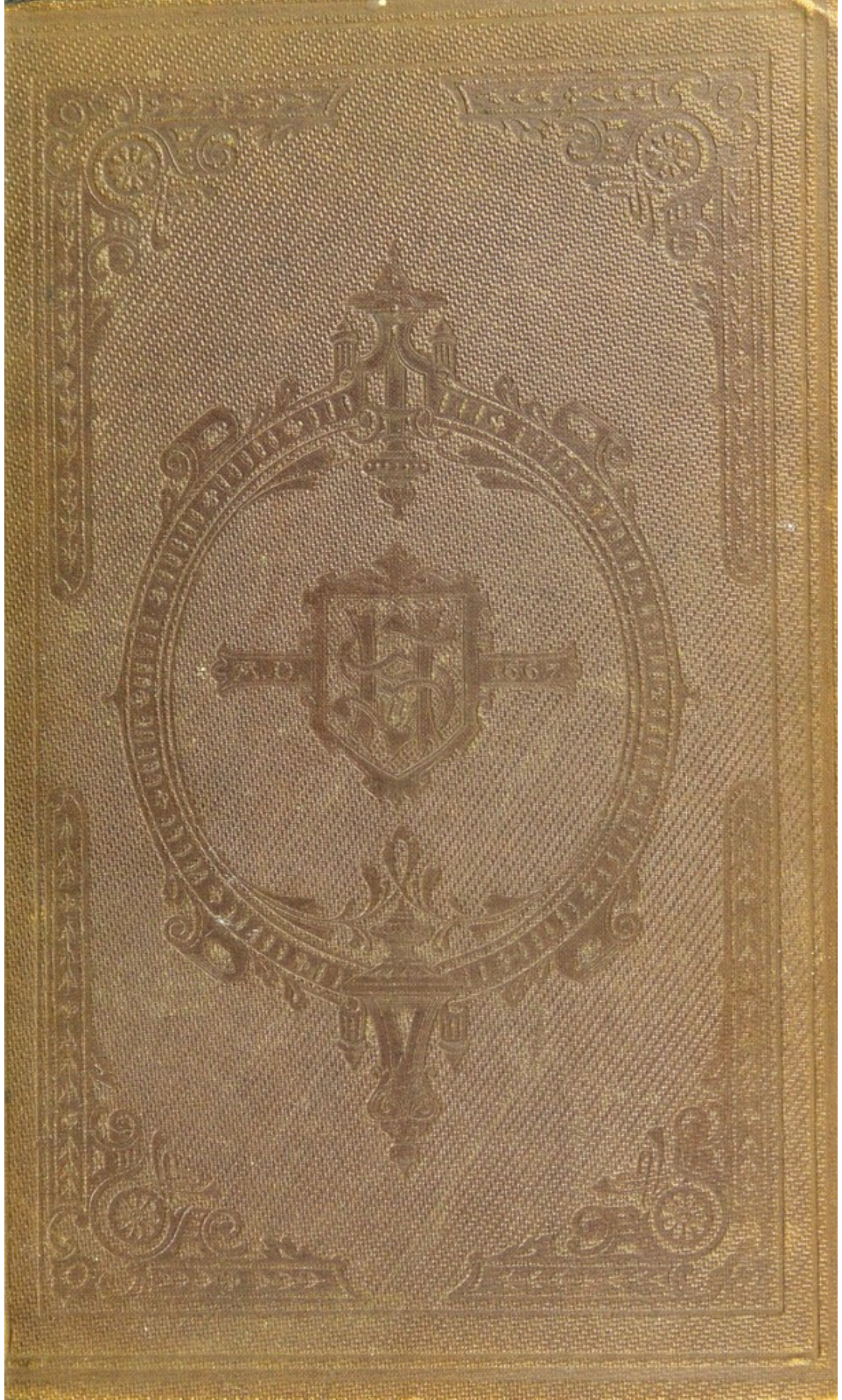
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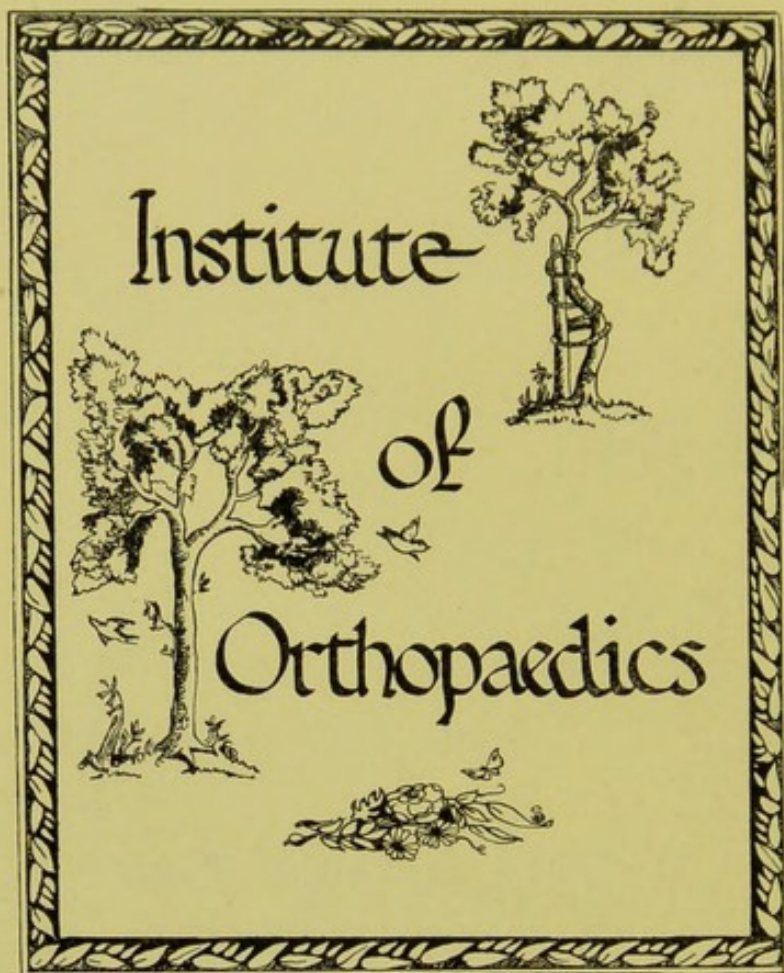
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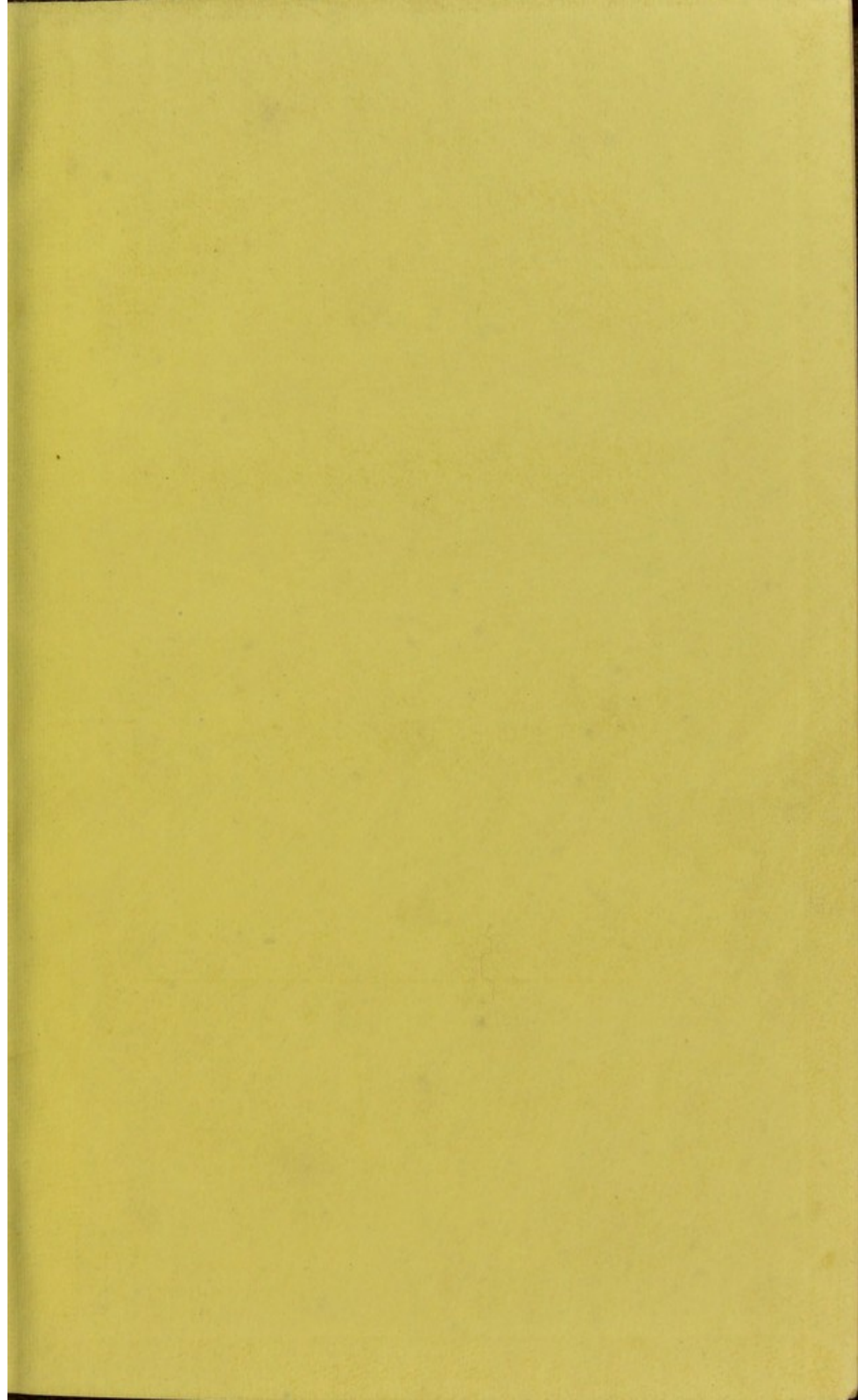


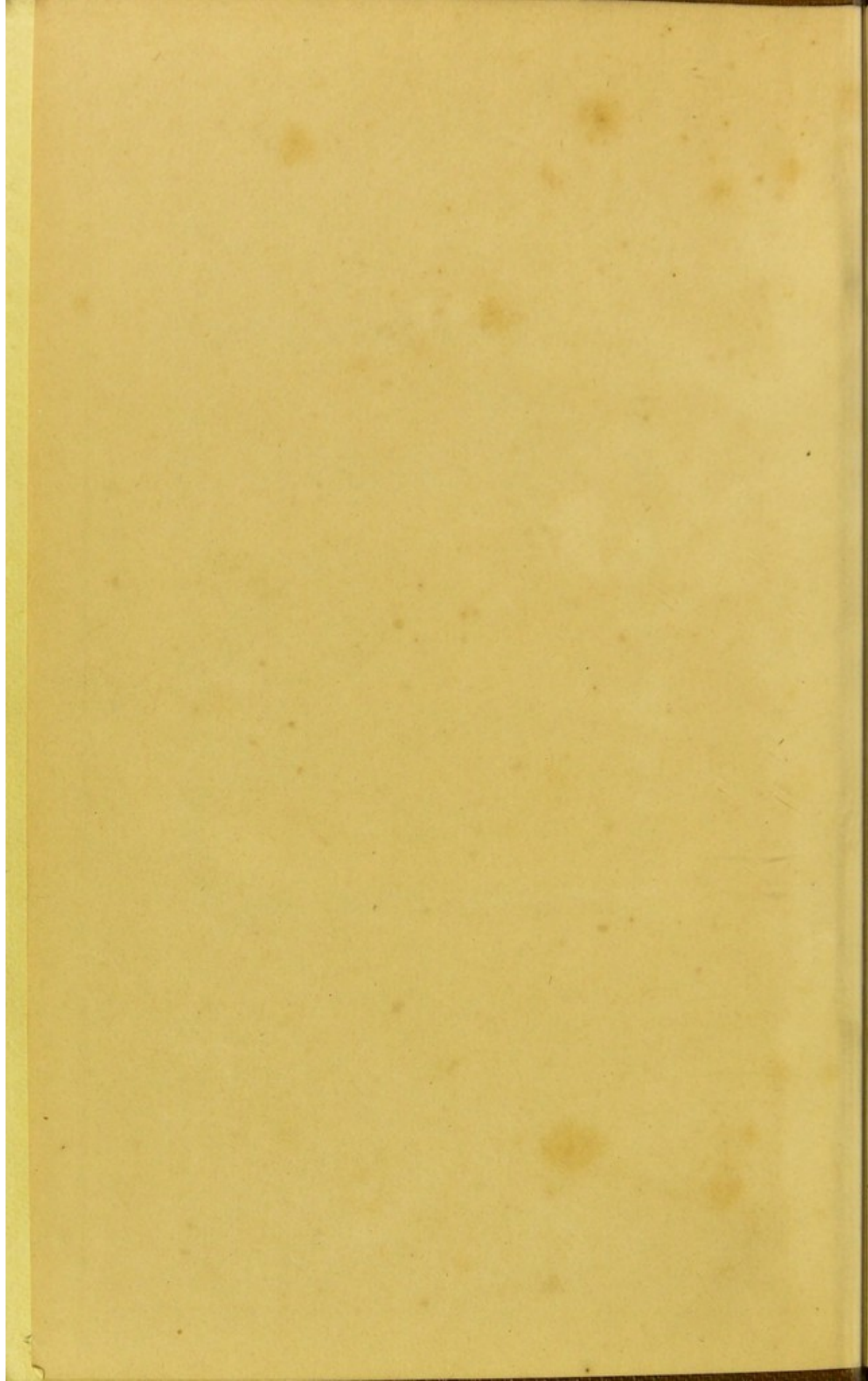


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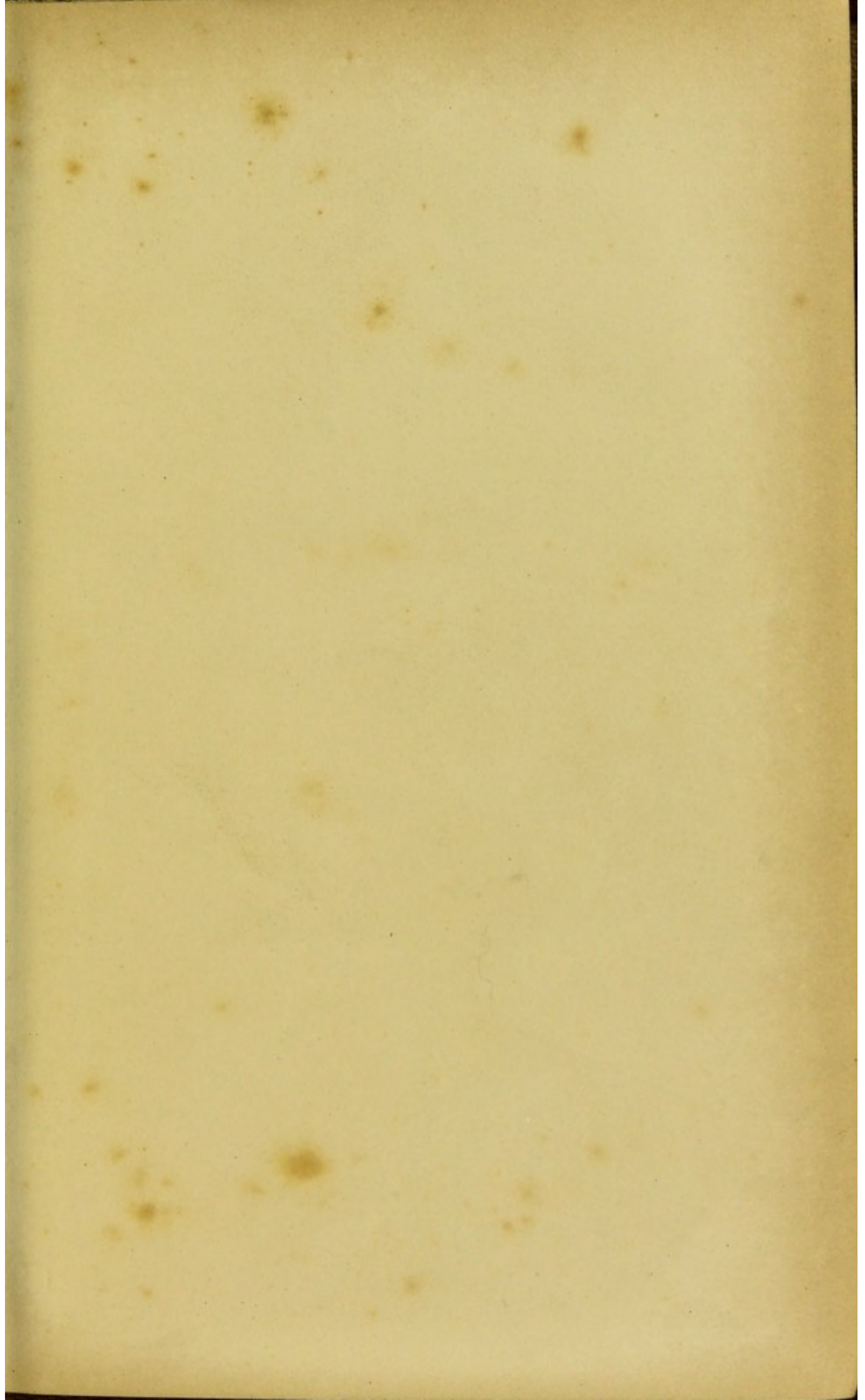
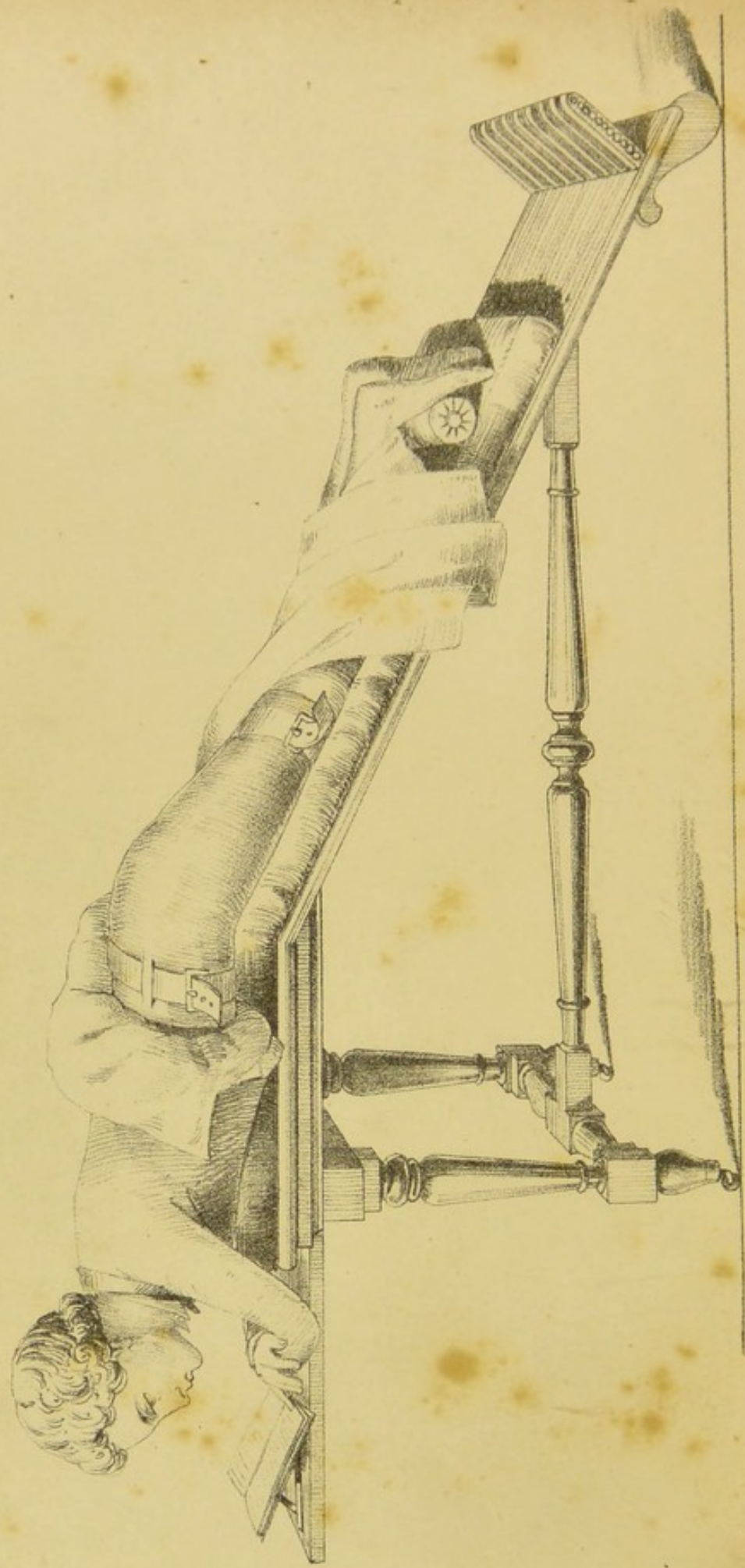


Plate 1.



J. Goussier Del. et Lith.

A  
PRACTICAL TREATISE  
ON  
MORBUS COXARIUS,  
OR  
HIP-JOINT DISEASE;

SHOWING THE  
ADVANTAGES TO BE DERIVED FROM A SYSTEM OF MECHANICAL  
MANAGEMENT, FOR THE PREVENTION AND CURE OF  
THE CONTRACTION OF THE LIMB.

WITH CASES AND ILLUSTRATIONS.

BY  
WILLIAM C. HUGMAN,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS,  
SURGEON TO THE VERRAL INSTITUTION (FOR THE TREATMENT OF  
SPINAL DISEASE AND DISTORTION, &c)

LONDON:  
SAMUEL HIGHLEY, 32, FLEET STREET.

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## PREFACE.

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IN publishing the following account of some cases of Hip-Joint Disease which have lately come under my care, it is my object to show the advantages and applicability of a system of mechanical management, which, when employed in conjunction with the ordinary local and general curative measures, has been found in numerous instances successful in preventing the lameness and distortion so commonly a consequence of this formidable malady.

The method proposed is the same as that originally employed by the late Dr. Verral in the treatment of vertebral disease and distortion, but with some modifications and improvements. While assisting him in his orthopædic practice during the last few years of his life, I had many opportunities of witnessing the very successful results he obtained by his management of this class of cases, and the experience since acquired has amply confirmed the favorable opinion I then formed.

The important object to be attained by the treatment recommended is, that the shortening and contraction of the affected limb, which so commonly occur during the progress of the disease, may be prevented, as I hope will be satisfactorily shown to have been the case in many of the instances related in the following pages.

19, GREAT ORMOND STREET, QUEEN SQUARE ;  
*March 29, 1849.*

## EXPLANATION OF THE PLATES.

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### PLATE I

Represents the position recommended to produce elongation of the contracted limb.

### PLATE II.

Fig. 1. Heine's couch and extension-apparatus, for the cure of spontaneous dislocation of the hip-joint.

Fig. 2. The prone-couch and extension-apparatus.

### PLATE III.

A sketch of a patient in an advanced stage of morbus coxarius, showing the position usually assumed in bed, and the deformity caused thereby.

### PLATE IV.

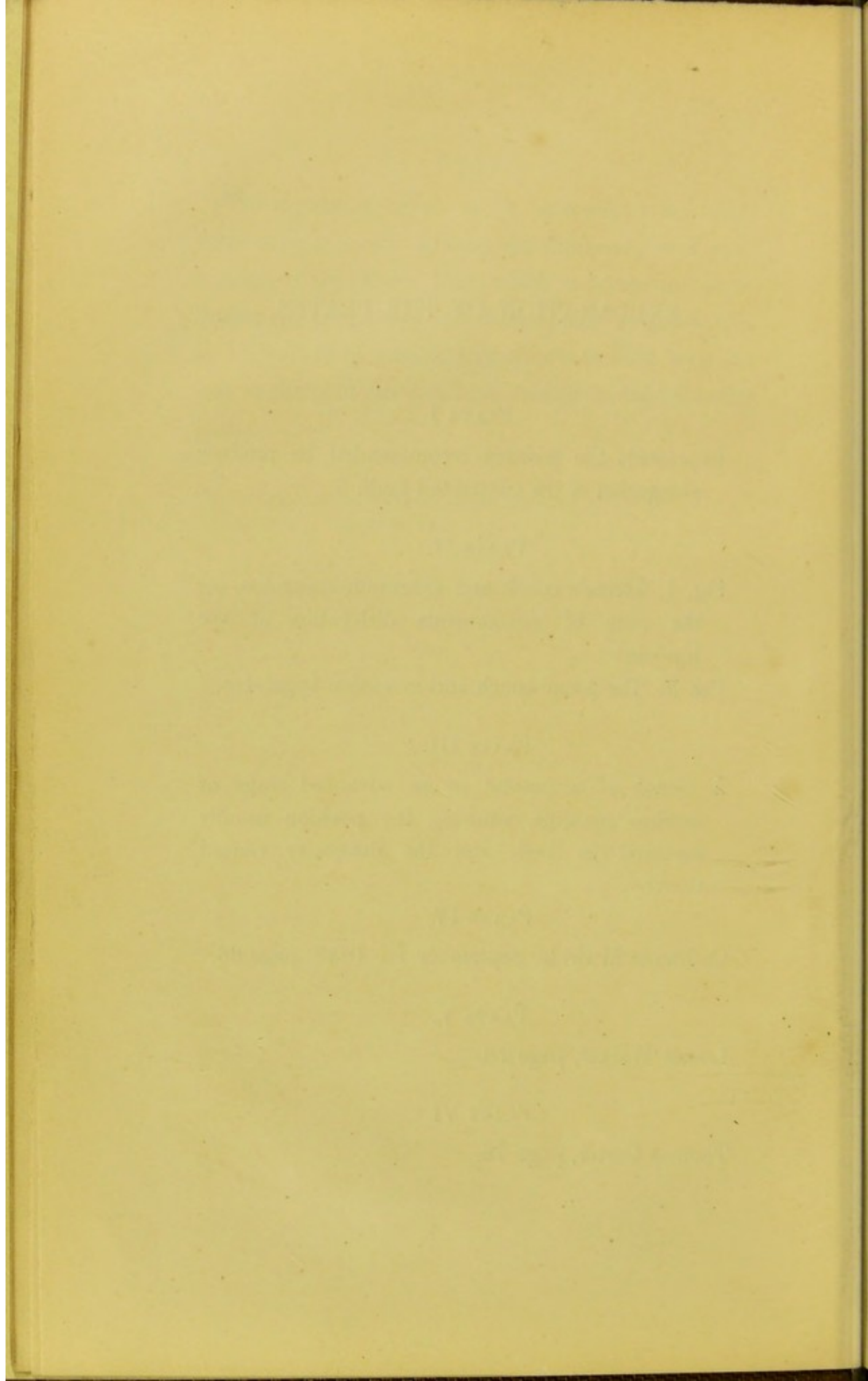
Catherine M'Bride, September 10, 1848, page 66.

### PLATE V.

Louisa Walker, page 73.

### PLATE VI.

Thomas Carter, page 76.



ON  
HIP-JOINT DISEASE.

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INTRODUCTION.

ANY reflecting person perambulating our public streets must be struck with the appearance of many individuals suffering from bodily infirmity in respect to their locomotive powers. He will observe some limping in their gait, with bent knees, and one foot elevated several inches from the ground by means of a high-heeled shoe, or other equivalent mechanical contrivance, aided (it may be) by the support of a crutch or walking-stick, and at the same time manifesting marked indications of bodily suffering, and debility of the constitution. Many such unfortunate persons are reduced to this state by having been the victims of a tedious and painful disease situated in the hip-joint, which is unfortunately of very frequent occurrence, especially in individuals of delicate frame, and of the scrofulous diathesis.

It has been partly such a contemplation, and partly by accidental circumstances, that I have been induced to become a close observer of this disease, and the treatment pursued in alleviating it; and it has ap-

peared to me that the result of my investigations and experiments may be worthy of attention, particularly as the means of preventing the lameness, although a consideration of great importance, have been comparatively neglected by the medical profession in this country, and only of late years have attracted the attention of physicians and surgeons on the continent of Europe.

The recent advances of science, especially in the department known as orthopædic surgery, have gradually shown to the world that many deformities of this class admit of alleviation to a much greater extent than in former ages appeared to be practicable, and it therefore appears somewhat singular, and may afford some ground for the accusation of supineness on the part of surgical practitioners, that more numerous and successful attempts have not been made of late years to adopt improved methods of treatment.

Those who are unacquainted with the mechanism of the human frame, its vital functions, the chemical composition of its elements, and the changes which they undergo from the period of infancy to old age, cannot form the slightest notion of the intricacy of the subject of medical studies, and of the myriads of phases diseases may assume, under the influence of congenital conformation, varieties of climate, seasons, temperature, diet, and other predisposing and exciting causes. The obstinate prejudices of former ages interfered most materially with the progress of surgical science, and it is only of late years that the public have been convinced

of the propriety of submitting the human body to the anatomical inspection of the medical man. Without the aid of anatomical research, it would be impossible that any sure progress could be made in the treatment of the disease to which I am about to call attention, and it is with the help of the knowledge afforded by it alone, that I can hope to convince the sceptic of the truth of the principle which I wish to establish. Even now, with every advantage which recent observations and discoveries afford, we cannot penetrate into the slight changes which are stealing on in such deep-seated parts of the body as the interior of the joints; but by carefully noticing every apparently unimportant symptom by which disease in them may be accompanied, we may be often enabled to check it in its early stages, and save the patient from months and years of suffering.

In order to make my views of the treatment of this disease more clearly understood and appreciated in the few following pages, I shall first give a brief outline of the disease itself, as to its symptoms and general progress, and point out the changes attendant upon it in its various stages. I shall speak of its terminations, and explain to what extent I believe the more unfavorable cases are capable of alleviation; and I shall then describe the mechanical process by which these benefits may be obtained, and bring forward continental authorities in support of my proposition.

COXALGIA, COXARTHROCAE,  
MORBUS COXARIUS, OR HIP-JOINT DISEASE.

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THE term coxalgia, by which this disease is most commonly recognised, is perhaps the least appropriate of the above designations. The word itself expresses only one of the symptoms, and does not define the precise situation of that symptom.

Coxalgia, or neuralgia coxæ, literally means pain of the hip. Now in this disease, as I shall presently mention more particularly, the pain, in a vast majority of cases, in the early stages at least, is not felt in the hip, but down the thigh, leg, or foot, the inside of the knee being the most frequent seat of it; and in its more advanced stages, although there generally is extreme pain in the hip, it extends widely to the surrounding parts. If the term were correctly used, it would rather point to a neuralgic affection, essentially seated in the joint, and confined to it; as for example, to the painful affection not unfrequently to be met with in hysterical females, in which the pain from the commencement is situated in the hip, accompanied with general nervous excitability.

The disease to which I am about to call attention is of distressingly frequent occurrence; looking to the constant exercise of the joint in the various positions

of the body, and the necessity of its permanency in a healthy condition.

The symptoms by which it is to be recognised in its earliest stages are by no means conclusive nor well defined, but are remarkable for their gradual and often extremely tardy development. The first indications of its approach are in many cases so slight as almost to escape notice, the attention of the patient being at first only directed to a feeling of stiffness about the hip, giving rise to a somewhat restricted motion of the joint, and a sense of weariness in the limb after exercise. Sometimes a slight dragging or trailing of the foot is observed, and the patient complains of a dull, aching pain in the inner side of the knee, which is not increased by the motion of that joint, nor does it appear to be tender or inflamed. Occasionally there may be darting pains along the inner side of the thigh, from the groin downwards.

These symptoms may continue for several months unnoticed by others, or, if heeded, are not uncommonly attributed to slight rheumatic or "growing pains," for which medical advice is thought unnecessary.

I have known these premonitory signs to continue for a much longer time (varying to a greater or less degree of intensity) after the receipt of a slight injury, which was nevertheless the undoubted exciting cause of the mischief—the child being frequently chastised for not endeavouring to correct what appeared to be only a bad habit of walking. Gradually the pain of the knee becomes more acute, and attacks the patient

chiefly during the night, continuing perhaps for several hours together.\* It is observed that he does not plant his foot firmly on the ground, and scarcely touches it with his heel; the limb is slightly drawn up, and cannot be extended or rotated without extreme pain and difficulty; the knee is drawn up, and slightly turned towards the sound one; and I have constantly observed, that when the disease arrives at this stage, the patient acquires the habit of sitting upon the edge and corner of the chair, resting upon the sound buttock, with the affected limb thrust backward, as if with the intention of avoiding pressure upon the joint, and of relaxing the irritated muscles. Sir Astley Cooper says, in speaking of this disease, that "it is more likely to be mistaken than scrofulous disease of any other part of the body," and directs attention to a diagnostic symptom which I have seldom found absent. He says, "if you throw something on the floor, and desire the child to pick it up, you will observe that, in attempting to get possession of it, it bends only the sound knee. If you say, 'let me see

\* The pain of the knee, so constantly a symptom of morbus coxarius, has been accounted for by Sir C. Bell, who attributed it to irritation of the extreme cutaneous branches of the *obturator nerve*, which are distributed upon the inner part of the knee. There is at the present time, a patient in the Middlesex Hospital, under the care of Mr. De Morgan, who, for six months prior to any other symptom of hip-disease, from which she is now suffering in its severest form, only complained of an acute pain in the inner part of her foot, and the real nature of the disease was for some time unsuspected. May not the pain in this instance be attributed to the remote branches of the *internal saphenus nerve*?

you put your foot on the chair,' the child does this readily enough with the sound leg, but is incapable of doing it with the other, in consequence of the confined state of the flexion of the joint."

If the patient now be made to stand erect for examination, it is observed he places the foot of the affected side some distance in advance of the other, and generally turns the toes outward. He cannot support the weight of the body in a perpendicular direction, but is obliged to rest entirely on the sound side, both in the erect and recumbent position.

It is surprising that, in this stage of the disease, the bodily health is often but very little impaired; but as the disease advances, the patient becomes feverish and restless towards evening, and in the morning complains of lassitude, debility, and loss of appetite, and the symptoms assume a more uniform and decided character. The rotundity of the nates is lost, and the affected hip has an appearance of remarkable flatness; the contour of the limb is entirely altered; it appears to stand out on the affected side, the muscles of the thigh and leg are wasted and flabby, and the limb is actually lengthened.

If the disease be not arrested in this stage, the pain of the knee becomes more severe; the slightest movement of the limb causes great suffering: an acute deep-seated pain is felt in the hip-socket if the thigh be pressed upwards, without, however, producing any motion of the joint; swelling takes place in the surrounding soft parts; the surface becomes preter-

naturally hot and inflamed, and the system is more or less lighted up with irritative fever; there are generally morning and evening exacerbations, and disturbed nights. The pain of the knee, in the majority of cases, assumes a periodical character, although never entirely absent; it generally comes on in the early part of the night, when the patient would naturally compose himself for rest, and continues until morning, when the few hours of broken and disturbed sleep he is able to procure are insufficient for the proper refreshment of the body, owing, in part, to the constrained and uncomfortable position he is obliged to assume in bed. He rests, or rather is obliged to support himself constantly on the sound side, between a prone and supine position, sometimes relieving the upper part of the body by resting on the elbow, which not unfrequently becomes wrung and excoriated. The unavoidable maintenance of this position, perhaps for many months together, induces a curve in the lumbar region of the spinal column, the convexity of which is towards the sound side; the pelvis assumes an oblique direction, and becomes tilted upwards on the affected side. In this stage of the disease, the limb affected is not unfrequently found apparently as much as two or three inches shorter than the other, not from dislocation or even partial displacement of the femur, but owing to the obliquity of the pelvis, and the curvature of the spinal column.

I have lately had an opportunity of taking a drawing of a patient in the condition above described, for



Plate 3.



From Life & on Stone by J. Coates

the purpose of showing to what extent the body may become distorted, merely by remaining for any length of time in one position. (See Plate 3.) In this case, the shortening of the extremity amounted to three inches and a half; and at first sight, previously to taking the measurements from the anterior superior spine of the ilium to the upper edge of the patella, I imagined that spontaneous dislocation of the head of the thigh-bone must have taken place.

The length of time occupied in the production of this amount of local mischief, and consequent deformity, varies according to the age and constitution of the patient. When the disease makes its appearance, as it frequently does, in children and young persons whose constitutions are in other respects healthy, and of a sanguine temperament, if the origin of the malady can be traced to any accident or injury inflicted in the neighbourhood of the hip-joint, such as might be produced by a fall or blow, long-continued or too violent exertion, sitting on the damp ground, want of proper caution in not changing wet clothes, &c. &c., more especially if it be consequent upon an attack of acute rheumatism, it sometimes runs its course with great rapidity; on the other hand, in children whose constitutions bear evident marks of the scrofulous diathesis, it often appears to be dormant in the system for many months, perhaps a year or more, its earlier symptoms being only developed during this time.

Owing to the unavoidable necessity which the patient feels of maintaining the recumbent position in

the manner described, in order to relieve the affected side from pressure, should recovery take place without much destruction of the textures of the joint, it is not to be expected, if the disease have continued any length of time, but that a considerable amount of lameness and distortion will remain; nor under the usual methods of treatment hitherto employed, have available attempts, that I am aware of, been made to obviate this tendency.

In the latter stages of the disease, the nates become considerably rounded and swollen; the local and constitutional symptoms undergo a rapid change for the worse. The fever assumes a hectic character; and although the formation of matter is not a necessary consequence, it not unfrequently happens, in the worst forms of the complaint, that the patient suffers from rigors, and abscess makes its appearance externally. The pointing of the abscess is not confined to any particular spot; sometimes it will come forward externally in the fore part of the thigh, or in the groin; at other times below the nates. Cases not unfrequently occur in which the matter finds its way into the rectum, and discharges itself by the anus: spiculæ of bone are sometimes contained in it. Sometimes healthy pus is discharged; at other times it is sanious or curdy.

The limb, which had previously been more or less, apparently shortened, according to the duration of the disease, and the position maintained by the patient, will now probably be found actually shortened to the extent of perhaps three or four inches; the knee gene-

rally inclines to the sound side, or rests upon the inner part of the opposite thigh, and is sometimes so firmly fixed in that position, that any attempt made to alter it, causes excruciating agony to the patient; the foot is occasionally inverted, but generally everted. Sometimes it happens that the diseased limb is completely thrown over the other, and locked in that manner; and if the patient be not worn out with hectic fever, and long-continued suffering, he gradually recovers with permanent and most distressing lameness.

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## OBSERVATIONS ON THE PATHOLOGY OF HIP-JOINT DISEASE.

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THE precise condition of the various textures composing the hip-joint, at the earliest periods of the disease, is at present involved in considerable obscurity. As I have before stated, the symptoms in the majority of cases at the commencement are so slight, as frequently to be overlooked by the patient himself; and in children more particularly, from whom there is a greater difficulty in ascertaining the nature of the case, owing to their inability of expressing their suffering in sufficiently intelligible terms, it must often occur that the disease makes considerable progress before even any remedial measures are resorted to; and it can only happen in cases where the patient is attacked with another disorder, which ends fatally, that the chance of inspection is afforded, and then, perhaps, never at the very commencement. Consequently it may be said, that few opportunities have hitherto been afforded to pathologists of studying the primary progress of the disease with sufficient accuracy. Seeing that a cure is very frequently practicable, and that the patient, in a vast number of instances, may be rescued from the distressing sequelæ too frequently attendant upon the severer forms, if the management I have to recommend

be employed at the outset. I have been led to the conclusion, that the mischief which subsequently takes place, must be preceded by a state of congestion, by some denominated chronic inflammation, in which passive distension of the blood-vessels is the most marked phenomenon, accompanied with a degree of nervous irritation; and in this opinion I find I am supported by Drs. Fricke and Taudtmann, in the *Fifth Official Report of the General Hospital of Hamburgh* (art. *Coxalgia*).

A great variety of opinions have been entertained respecting the textures or structures primarily attacked, and I think it fair to presume, that the inflammation may commence in any of the individual parts composing the joint, according to the constitutional peculiarities of the person affected. Thus, in patients who are evidently of a scrofulous habit of body, it will, most likely, be first developed in the bones, the cancelli of which, particularly the head of the femur, have, in these cases, frequently been found filled with caseous matter. This latter opinion was, I believe, entertained by Mr. Liston, and others. In the very interesting case examined by Mr. Aston Key, and reported in the 18th volume of the 'Medico-Chirurgical Transactions,' ulceration of the cartilages was preceded by inflammation and thickening of the ligamentum teres, where it is attached to the head of the femur, and also where it is attached to the acetabulum, ulceration had commenced. "The patient, a young woman, had laboured under the usual symptoms of chronic inflammation of the hip-joint during the space of six months. The symptoms

had partly yielded to the treatment employed, when she was attacked with another disease, of which she died." Sir B. Brodie considers that ulceration of the cartilages takes place at an early period of the disease. He says, also—"It seems not improbable, that in some of those cases, which are usually regarded as examples of simple inflammation of the synovial membrane, the inflammation may not have been confined, even in the first instance, to this individual part, but may have begun simultaneously in all the textures of the joint. This is in conformity with what is observed to happen occasionally in the eye, and in other organs; and, under such circumstances, it is no more than might be expected that, as the inflammation subsides, the cartilage should ulcerate, either in the centre or in some other part of its surface."

It is well ascertained that the inflammation of the various textures of the joint is speedily followed by, or coexistent with, an augmented secretion of synovia into its cavity, which causes the head of the femur to be thrust outwards, and consequently separated to some extent from the base of the acetabulum. The ligamentum teres must necessarily be stretched and elongated. Mr. Aston Key's case clearly demonstrates that the round ligament speedily becomes involved in the inflammatory condition. In this way, the lengthening of the limb in the early period of the disease may be accounted for. The patient, being unable to support the weight of the body on the affected side, naturally leans upon the sound limb, and places the other at

some distance before him; the pelvis, therefore, is depressed on the affected side, and the oblique direction of the neck of the femur causes the apparent elongation of the whole limb.

Ulceration and absorption of the cartilages covering the head of the bone, and lining the cavity of the acetabulum, subsequently take place, and lastly, caries of the bony structures ensues. The projecting margin of the acetabulum becomes destroyed by the carious absorption, and the cavity widened and enlarged; the head of the thigh-bone is considerably diminished in size, the cancelli enlarged, and the internal structure of the bone more or less broken up, and absorbed. The ligamentum teres and cotyloid ligament having given way, it is easy to imagine how, by the contraction of the extensor muscles, dislocation takes place; and not only does the extent of the shortening of the limb depend upon the action exerted by these muscles, but their spasmodic action continuing, tends materially to keep up irritation, through the friction produced by the head of the thigh-bone against the dorsum of the ilium. Thus it is, that abscesses are frequently formed at this stage of the disease, unless means be resorted to to counteract the muscular spasms.

If perfect rest be maintained after the head of the thigh-bone has become displaced from the articular cavity, and the limb be kept in a favorable position, the liberated head of the femur becomes united by osseous substance to the flat surface of the dorsum of the ilium, at a greater or less distance from the aceta-

bulum, consequently giving rise to more or less shortening of the limb.

In other cases, in which perfect rest is not maintained, and where the *vis medicatrix naturæ* is left to her own unassisted efforts, it occasionally happens that a new joint is formed upon the part of the ilium against which the head of the bone plays. We find, in such cases, a deposit of cartilaginous and even bony matter, in a cup-like form, and ivory-like appearance, analogous to the original socket, but not so closely fitted, nor so deep; there is a new synovial membrane with its secreted fluid, and these are surrounded by a new capsular ligament.

The appearances, however, observed after death, in the bones of those who have been afflicted with scrofulous caries of the hip, necessarily vary, according to the extent to which the destroying process of the disease has affected these structures. I have lately examined a great number of preparations in the different hospital museums, and at the museum of the Royal College of Surgeons (which contains a large collection of the most instructive specimens of diseases of joints), and I observe, that in some cases the head of the thigh-bone remains entire, and apparently very little injured, while the margin of the acetabulum is more or less destroyed by carious ulceration, and is widened and rendered much more shallow than in its normal condition; in others the reverse of this is seen,—the ulcerative process appears to have confined itself to the head, and, in some instances extended to the neck of the femur;

while the pelvic bones remain entirely or only very slightly injured. In almost every instance, the round ligament and the articular cartilages are found to be absorbed, and the bones either entirely or partially denuded of this covering. In more than one instance, I have observed the acetabulum to be considerably enlarged and deepened, retaining, at the same time, its natural form, but quite disproportioned to the size of the head of the femur; the deepening, in these cases, depending upon the deposition of ossific matter around the cavity, external to the margin, and upon the dorsum of the ilium.

It seems more than probable, that while absorption of the carious bone is taking place in the structures immediately subservient to the functions of the joint, the efforts of nature are, at the same time, directed to a compensation for the loss of substance, by the formation of new osseous matter, of an ivory-like texture and appearance, around the acetabulum, external to its margin, and about the neck of the femur; occasionally, also, this deposition occurs in the iliac fossa, internal to the acetabulum. This osseous deposit is to be observed in most cases which I have examined, where the disease has attacked those who have passed the age of puberty; whereas, in the preparations taken from children and younger subjects, it is not found to the same extent, probably owing to the circumstance that the tendency to the formation of compact bone is not yet fully developed. In one preparation in the museum of the Middlesex Hospital, taken from a patient aged

21 years (lately under the care of Mr. Shaw), who died of scrofulous disease of the hip, with extensive sloughing of the back, the articulating surfaces are seen in an advanced state of ulceration—part of the base of the acetabulum is absorbed, so that the head of the femur projects into the pelvis, the bones have become extremely light and thin, the cancelli enlarged, giving to them a spongy appearance, and the upper portion of the shaft scarcely thicker than a wafer; nevertheless, the external form of the bones is but little altered, and new bone is deposited to a considerable extent around the acetabulum and neck of the femur.

In most of the cases which occur in children, this deposit, although it is less frequently to be observed, occasionally appears, particularly around the neck of the femur, external to the capsule.

It was formerly supposed that the shortening of the limb was in every instance caused by upward dislocation of the femur; modern research has, however, proved that in many, perhaps the majority, of those cases which end fatally, the head of the bone is removed by carious absorption. This opinion was entertained by Mr. Liston, who speaks very decidedly upon the subject; he says—"I have no hesitation in saying, that in almost every instance this will be found to obtain;" but, that dislocation does also frequently happen, without much alteration in the structure of the bones, cannot be doubted—as is well exemplified in the case related by Mr. Fergusson, in his *System of Practical Surgery*, which, as it illustrates several impor-

tant pathological points, I will quote at length. The case was, in the first instance, mistaken for one of dislocation from violence:—"I have lately had under treatment the most palpable case of spontaneous luxation in hip disease which has ever come under my notice. A remarkably muscular man, about 25 years of age, had a large deep-seated abscess in the hip, which there was reason to suppose was connected, by an opening in the sacro-sciatic notch, with inflammation in the iliac fossa. In the course of three months, during which time he was confined to bed, several openings were formed in the loins to permit the escape of matter, and, latterly, the skin between the lumbar region and upper and back part of the thigh seemed one bag of fluid. For three weeks previous to death, he had suffered greatly from pain in the region of the hip, and would not allow the part to be touched;—indeed, he was so much exhausted that there was no inducement to make any attempt to examine the condition of the joint. During the latter period, he lay with the thigh more bent upon the pelvis than ever, and the knee rested on the sound thigh fully four inches above the condyles of the femur; the trochanter appeared much nearer the anterior part of the crest of the ilium than previously, and a fulness on the dorsum ilii became remarkably distinct before his death. On examining the body afterwards, these latter features were all most conspicuous; and when the skin was elevated, the head of the femur was found in the situation represented in figure 144." (The plate here

mentioned represents the position of the head of the thigh-bone, dislocated upwards and backwards from accident and violence.) "The round ligament was softened and torn across; the capsular—or rather what remained of it—and also the gluteus medius and minimus, with the smaller rotator muscles, were soft, pulpy, broken up, and so infiltrated with pus, that they could scarcely be recognised, and the head of the bone, saving that the cartilage was absorbed, was otherwise as entire as if the displacement had resulted from accidental force. The cotyloid ligament had disappeared, but the margin of the cavity where the head had slipped upwards, although in a state of caries, was as prominent as in the healthy condition."

The sudden shortening of the limb, which occasionally happens in the advanced stage of the less severe examples of the disease, unattended with abscess, can, I imagine, only be accounted for on the supposition that spontaneous dislocation takes place, unaccompanied with extensive caries of the femur—as in the four cases I shall hereafter have occasion to mention, which were successfully treated by Dr. Heine, in the Orthopædic Hospital at Cannstatt, as also in some of those which have fallen under my own care.

The various museums furnish numerous examples of bony union having taken place between the head of the femur and the pelvic bones. In some of these there appears to be no displacement, and very little loss of substance: the head of the bone being still retained within the articular cavity, but ankylosed in that situ-

ation. In others, the head of the femur is firmly united to the dorsum of the ilium, at some distance from the acetabulum, which is partially filled up with new ossific deposit; in others, again, the head and neck of the thigh-bone can scarcely be recognised, and union has taken place in the situation of the upper and anterior margin of the acetabulum. In all these cases of long-standing ankylosis, the distortion becomes very great, in consequence of the mal-position of the thigh-bone with respect to the pelvis. In almost every instance bony union takes place, in such a manner that the shaft of the femur is directed upwards and inwards, and projects at a more or less obtuse angle with the trunk; consequently, when the patient is in the erect position, the knee must be considerably elevated from the ground, and in walking, the body is necessarily bent forward; the pelvis is also thrown out of its natural position, the symphysis pubis being directed forwards instead of upwards, as in the pelvis of those who have been the subjects of rachitis; it is also more or less altered in form and appearance, according to the extent of the caries while the disease was in progress, and the amount of new osseous deposit.

In the museum of the Middlesex Hospital there are several preparations in illustration of these facts. In all the specimens in which ankylosis has been of long standing, the bones have become immensely hardened and compact in structure; the cancellous structure, as well as the natural form, is almost entirely lost; the great trochanter diminished in size and rounded; the

rough surface upon its summit for the attachment of the gluteus medius is obliterated and smooth, as well as the anterior and posterior edges for the insertion of the gluteus minimus and quadratus femoris. The same appearances are to be observed with respect to the tuberosity of the ischium—the muscles acting upon the hip-joint having become useless some time before death, and probably to some extent broken up and absorbed—the loss of the ilio-femoral articulation being in some degree compensated for, by a slight mobility of the pelvis itself.

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## TREATMENT OF HIP-JOINT DISEASE.

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IN speaking of the treatment of Morbus Coxarius, with reference to the employment of certain mechanical contrivances, for the prevention and cure of the deformity, to which in most cases this formidable disease gives rise, I do not feel myself called upon to enter at any length into the consideration of all the complications and modifications of the disease, consequent upon the various local and constitutional causes by which it is developed. Few subjects have perhaps occupied a greater share of the attention of eminent surgeons at the present day; and although, during the last eight years, I have had unusual opportunities of making myself acquainted with the disease, in every form and variety, I shall not avail myself of the present occasion to offer any new suggestions.

I think there cannot be a doubt that, in the earliest stages of the disease, whether it assumes the acute or chronic form, the most important consideration is to enforce complete quietude of the affected limb, although a contrary opinion has been by some entertained.

Mr. Coulson says: "In this class of patients, rest should not be so strictly prescribed as to endanger the health of the patient. To obviate, in some degree, the ill consequences of want of exercise, the patient

should be taken as much as possible into the open air, which acts as a stimulus to the vital powers; and gentle exercise, provided pain in the joint does not follow, may be allowed." And further on—"I firmly believe that the doctrine of rest is carried to too great an extent, and that modified exercise is of vast importance in this disease." The opinion of Lugol is mentioned in support of this proposition. He considers that scrofulous patients should not be restricted to absolute confinement in *bed*. In this latter opinion, doubtless, all good practitioners will agree; but at the same time I conceive that there is a vast difference between positive confinement in bed and the necessary continued rest upon a sofa or an appropriate couch; and it is a well-known fact, that persons who are afflicted with chronic diseases, especially children, will bear confinement with very little interference to their general health, provided that the position be an easy one, the apartment large and well ventilated, and the mind amused.

I am convinced that I do not err in stating that the general opinion is adverse to any kind of motion of the affected limb. Mr. S. Cooper says:\* "The most essential part of the treatment consists in keeping the joint perfectly quiet: this principle is insisted upon by all good practical surgeons. If the joint be moved, there will certainly be abscesses, and the disease will take an unfavorable course. In the early stage we

\* First Lines of the Practice of Surgery, p. 287.

may have recourse to cupping, leeches, and fomentations. These means should enter into the first part of the treatment, because, in the early stage, there is more or less inflammation about the joint, from its not having been kept quiet."

Sir Astley Cooper also lays great stress upon the maintenance of rest. He says:\* "In the first place, the recumbent position, and as much rest as possible, should be strictly enjoined." And here the great difficulty presents itself, for it will generally be found quite impossible to confine a child upon an ordinary couch or sofa for a sufficient length of time, and with such precision that there shall be no motion whatever at the hip-joint. The natural activity and restlessness of childhood make this almost an impracticable remedy in the early stages of chronic inflammation of the hip-joint, on account of the absence of any considerable pain. In the acute form, it may to a certain extent be practicable; but here again another evil arises, namely, the tendency which the patient has to assume a position in bed, which generally of itself ultimately induces a great amount of distortion.

The principal object to be had in view in the treatment is to obviate this tendency, and the plan I have pursued is extremely simple, and has proved efficacious. It consists in placing the patient in the prone position, upon a couch suited to the purpose, after the manner proposed by the late Dr. Verral, and represented in

\* Lectures on Surgery, p. 543. Eighth edition.

Plate 1. At first sight this posture might be thought an uncomfortable one; but I can confidently assert, that after it has been maintained for a few hours, it is so extremely easy to the patient, that I have never in any one instance felt the necessity of substituting any other, while the advantages to be gained by it, I imagine, are sufficiently obvious. In the first place, all pressure is removed from the affected hip; the whole length of the extremity is rested upon a slightly-inclined plane, and maintained in a semi-flexed direction, precisely as the patient himself is instinctively inclined to place the limb in order to obtain relief from pain, with this difference; that while lying in bed he almost invariably rests the knee upon the opposite thigh. The undoubted reason for this position being so constantly assumed by the patient is, that the muscles situated around the hip-joint are thus maintained in a state intermediate between flexion and extension. The *psoas magnus* and *iliacus internus*, which pass down under Poupart's ligament in front of the joint, and are in close apposition to it in that situation, not being called into action, exert less pressure against the capsular ligament; the *rectus* muscle is also comparatively at rest; the small rotators are likewise in some degree relaxed in this position of the limb; and the *glutei* muscles, which cover in the hip-joint posteriorly and externally, being also in a state of relaxation, cease to exert that indirect pressure upon the joint which they produce when in a healthy condition, and when the body is erect, or when the lower limbs

are extended. By so doing they necessarily press the head of the thigh-bone more closely against its containing socket, and thus keep up irritation of the inflamed cavity. Another great advantage is also gained by this position, namely, the facility it affords for the application of such topical remedies as may be deemed necessary; and it will be seen, by referring to Plate No. 1, that the free use of the arms and upper portion of the body is permitted, so that any sedentary amusement, suitable to the age and inclinations of the patient, may be allowed,—such as reading, writing, or drawing, for example,—a very important consideration when the intention is to enforce quietude, particularly with children. I had a young lady lately under my care, who could manage to practise on the piano-forte in this position with tolerable facility, and who ultimately recovered with very slight lameness.

In the early stage of hip-joint disease, more particularly in the less severe examples of it, I am convinced that perfect quietude for a sufficient length of time, with the joint confined in such a manner that there shall be no motion whatever, will in many cases be found sufficient to effect a cure, after having in the first instance directed the abstraction of blood from the part, either by means of leeches or cupping, according to the age of the patient, and the circumstances of the case.

In order the more effectually to confine the joint, the hip-shield, constructed by Mr. Sparks, of Bond-street, will be found an admirable contrivance; or a

less expensive and equally efficacious splint, can be readily formed by means of that wonderfully useful material gutta percha, which I have generally employed. For this purpose, a piece should be selected rather less than one eighth of an inch in thickness, and large enough to cover the nates, come round to the crest of the ilium in front, and extend downwards to the middle of the thigh. This must be cut into the proper form, and when rendered plastic by being soaked for a few minutes in boiling water, and allowed to cool so that it can be borne by the patient, it may be moulded with the greatest facility to take a perfect cast of the limb: this is to be lined inside with chamois leather, and covered with sheep-skin, which may be done at a trifling expense. It can be made to fit perfectly close to the part by means of two straps, one being applied round the thigh, and the other round the hips, the buckles being made to lie upon the splint, to avoid the pressure they would otherwise occasion, as in Plate No. 1.

In respect to the quiescent state of the joint thus produced, the treatment corresponds to that generally known as Scott's method, upon which principle I am strongly of opinion that its superior efficacy in a great measure depends. I have on several occasions more closely imitated this plan, in conjunction with the prone position, with the best results, in cases where the strumous diathesis was distinctly manifest. It consists in first sponging the surface of the joint with warm water, and, when thoroughly dry, rubbing the

part with camphorated spirits of wine until it produces a decided redness. A large plaster is then spread upon leather, consisting of the *ceratum saponis* and *unguentum hydrargyri fort. cum camphorâ* in equal proportions (or less of the strong mercurial ointment in the case of a young child), and applied smoothly over the joint, and over this the hip-shield of *gutta percha* as tightly as it can comfortably be borne; and absolute rest maintained in the manner above described.

Objections have been urged against the prone position upon two grounds: first, "that it is not the one naturally assumed by invalids; that the tendency of nearly all invalids, when confined to their beds by aggravated sickness, is to lie in the supine posture;" second, "that the play of the ribs, and abdominal and thoracic muscles, is restricted; and after a time the thorax itself is flattened, and the digestive, respiratory, and circulating functions are more or less impeded."

In answer to the first objection, I would only direct the attention of any practitioner who has had opportunities of noticing the position of those who are bed-ridden in consequence of the disease under consideration, to the fact that in almost every case the tendency is partially to assume the prone position in bed, as represented in Plate No. 3, in order to relieve the long-continued and painful pressure upon the sound side, it being impossible to rest supine in such a way as to avoid pressure upon the diseased hip. In the case of Miss R., to which I shall have occasion hereafter to refer, a similar contrivance to the prone couch was occasionally

had recourse to, previously to her being placed under my care, by adjusting pillows under the chest and abdomen, and propping the affected limb carefully in a semiflexed direction: in this way, she tells me that she could obtain very comfortable rest for three or four hours daily.

With regard to the second objection above stated, I can only say that, after eight years' experience, I have never known it produce such effects, or it would long ago have been abandoned.

The late Mr. Liston, who, during the summer of 1846, occasionally visited the Verral Asylum, and took some interest in the progress of the cases then under treatment, says, in speaking of the treatment of posterior curvature of the spinal column—"Perhaps the prone position, about which so much has been said lately, is the most favorable, as it takes pressure off the diseased parts, and prevents the carious bodies of the bones from falling upon one another; it also assists the return of blood from the numerous veins contained in the vertebræ and in the spinal cord." Mr. Lonsdale also, in his excellent treatise on Lateral Curvature of the Spine, remarks that—"This (the prone position) is admirably adapted for angular curvature of the spine; depending on disease of the vertebræ. It was first introduced by Dr. Verral, and has been practised by him and by others, with great success;" and I may here direct attention to the fact, that, in no class of cases, is the value of this plan of treatment better exemplified than in those lamentable instances of caries

of the vertebræ, attended with paralysis of the lower extremities ; when, in consequence of the depressed state of the vital powers, and languid condition of the circulation, the long-continued pressure, which is totally unavoidable by the ordinary methods of treatment, gives rise to a sloughing of the nates and sacrum. We had, very lately, two patients in the Asylum in this condition—one of whom, a young woman, for a twelve-month previous to her admission, had been afflicted with a considerable angular curvature of the upper dorsal vertebræ, attended with complete paralysis of the lower half of the body. In the month of June last, when she became an in-patient at the Asylum, sloughing had taken place to such an extent that the trochanter major on both sides, was as nearly as possible denuded : the bones could be distinctly touched with a probe, covered only with a thin layer of unhealthy granulation, and the excavations were large and deep enough to contain a full-sized orange ; the cuticle covering the nates and sacrum was also peeling off, and these parts were beginning to assume the leaden, pulpy, and dead appearance indicative of approaching mortification. She was immediately placed in the prone position, upon a soft horsehair mattress, only occasionally being transferred to a water-bed, until such time as she could entirely accommodate herself to the change, and ordered a generous meat diet, with four ounces of port wine daily. In about three weeks' time the remaining portion of the slough had come away, and the granulations assumed a healthy appearance.

In the month of September following, the excavations had entirely filled up, and were soundly healed over; her general health had undergone a corresponding change for the better, and sensation was so far restored to the limbs that she could distinctly feel the pressure of the hand upon every part of the extremities. The urine and alvine evacuations were no longer passed involuntarily. In this condition she was unfortunately obliged to leave the institution; and at her urgent desire was provided with the couch, in order to continue the treatment at home.

Seeing that scrofulous disease of the hip-joint is so frequently associated with caries of the vertebræ, it will readily be admitted that the applicability of the prone system to these latter cases, is a most valuable consideration, and I trust it may not be considered an unnecessary digression to insert the following notes of an interesting case which was discharged from the Asylum a few days since,

Octavius Young, aged 22 years, a hammerman, lately working in the engine-factory of the North-Western Railway, until two years since had enjoyed very good health, and appeared to have a sound and robust constitution. About that time, while employed at his laborious business, he began to experience a feeling of stiffness and weakness in the back and loins, and occasionally complained of a dull heavy pain in that situation. During the first five or six months these symptoms never prevented him following his accustomed employment, and very little attention was

paid to them, until, by accident, one of his fellow-workmen noticed that a considerable projection was to be observed in the lumbar region of the back. The symptoms of pain and weakness gradually increased, and at the expiration of twelve months he was obliged, in consequence, entirely to give up his work. He now applied for admission into St. Bartholomew's Hospital, but was unsuccessful, on account of the tedious nature of the case; he then applied at the University College Hospital for admission, but with no better success. His condition was at this time very distressing—he having recently been married, and now entirely deprived of the means of earning a livelihood. Interest was being made to get him into the Margate Sea-Bathing Infirmary, when, by the advice of a friend, who had at that time a child in the Verral Institution, he applied there, and was received as an in-patient the 15th of August, 1848. When admitted, he had a careworn and anxious expression of countenance, complained of great general debility and lassitude, and had not been able to do any work for six months previously;—his nights were disturbed, and he could only rest in an uncomfortable position upon the right side; his appetite was impaired, and he complained of dyspeptic symptoms. The pain of the back was constant and severe, accompanied with so much weakness that he could only walk a very short distance, and that with great fatigue and distress; the pain was always most severe when he attempted to stoop; and having done so, he could only regain the erect posture with the assistance

of a stick or some other support. There was a considerable latero-posterior curvature of the last four dorsal and upper lumbar vertebræ, and the last five or six ribs were bulged outwards on the right side. He attributed the spinal curvature and its consequent symptoms to the peculiar nature of his employment—that of hammerman at the forge, although he did not remember having at any time received an injury or strain; but from the way in which the muscles of the back and right side are brought into action in giving the circular sweep to the heavy hammer (fourteen pounds weight, attached to the extremity of a handle two and a half feet in length), it is easy to imagine that, under certain circumstances favorable to the production of curvature, such effects would follow. In this, as in most other laborious manual employments, the muscles of the right side are more constantly called into action than those of the left; and in this instance it may fairly be presumed that the latissimus dorsi muscle (arising as it does from the six inferior spines of the dorsal vertebræ, and by the lumbar fascia, from all the lumbar spines, and from the anterior extremities of the last three or four ribs, its various fibres converging towards the inferior angle of the scapula, from thence to the bicipital groove, near the inner part of the humerus—its continued and undue action—where the ligaments of the spinal column are in a weakened condition) would tend to cause just such a deviation from its normal vertical position as I have here described—assisted, as it would be, by the other muscles of the back, particularly by

the serratus magnus and serratus posticus inferior, and indirectly by the sacro-lumbalis;—moreover, in order to preserve the equilibrium of the body, he must incline considerably to the right side when at his work.

This patient remained at the Asylum during four months, requiring no active treatment of any kind. Continued rest in the *prone position*, with a blister occasionally applied over the seat of pain, was found sufficient to relieve all the more distressing symptoms. After the first fortnight he ceased to complain of pain. Preparations of steel were administered during the treatment, and he was discharged on the 4th of December. At that time the projection was considerably diminished, but not entirely removed, and he at once returned to a less laborious department in the factory, feeling, as he said, as strong and well as ever.

But to resume my remarks upon the treatment of morbus coxarius. In further exemplification of the great advantages to be derived from the system of treatment I am now advocating, I would direct attention to the successful results of a similar method, as pursued in one of the large continental hospitals.

In the 'Fifth Official Report of the General Hospital in Hamburgh,' occurs the following account of the cases admitted that year (by Drs. Fricke and Taudtmann, art. Coxalgia):—"Out of thirty-four patients afflicted with coxalgia, eleven were cured, two partially cured and discharged, seven died, and the remainder were retained under treatment.

“Two patients, who were admitted in the first stage of the disease, were discharged cured, after a treatment of four weeks. Two others were admitted at a later stage, and the remaining seven were retained in the hospital a longer period, to effect the cure.

“We observe, not only in the hospital, but likewise in private practice in *Hamburgh*, that this disease is very prevalent; and we are convinced that, although the subject has been well studied, there exist many obscurities, both as regards the origin of the individual symptoms and the treatment of them. For example—we have never found satisfactorily explained the peculiar elongation of the limb, which is one of its most frequent symptoms;—that the elongation is not produced mechanically by protrusion of the head of the thigh-bone, or contraction of the socket, has been shown by examination of the dead subject. We have disarticulated the head of the thigh-bone, enveloped it in linen in order to produce enlargement, and artificially filled up the socket in like manner, then replaced the bone in its normal position, and found that the limb retained its proper length; nor is the oblique position of the pelvis always the reason of this elongation. It depends certainly in many cases, particularly in the early stages of the disease, upon a peculiar nervous affection producing disturbed action of the muscles, which the actual cautery speedily relieves, but the symptom shortly returns.

“It cannot be doubted that in many cases this disease is produced solely by inflammation; and there is

still less doubt that the nervous form, if we may so term it, eventually becomes inflammatory. Acting upon these views, we have latterly, in the nervous form of the disease, effected the most happy results, by treating coxalgia simply by means of bandages, and obtaining complete rest of the hip-joint, prohibiting any motion whatever of the affected limb; employing these simple means, although the cases appeared to demand a much more energetic treatment.

“The actual cautery has been experimentally employed in the more advanced stages of the disease. Important as this remedy generally is, not only has it failed to be of service, but has proved to be decidedly injurious, on account of the uncertain extent of the subsequent suppuration it produces.

“In cases where the head of the thigh-bone had already left the socket and become dislocated, we have likewise employed an apparatus which not only retained the diseased limb in perfect rest, but also produced extension and elongation. In these cases, where the limb has become shortened in consequence of the dislocation, the attempts to produce elongation have been most unjustly condemned. We think, however, that they should not always be made with a view to replace the head of the thigh-bone in its original socket, but with the design to form quickly a new socket; for when the head of the thigh-bone has become displaced, the muscles exert such a power over the liberated limb, that it is constantly kept in greater or less motion, and allowed so little rest, that a new socket

cannot be formed. By this constant motion the inflammation is also considerably increased, the abscesses are enlarged, and the matter distributed, so that the life of the patient is greatly endangered; but by overcoming the action of the muscles, and destroying the influence they exert over the diseased bone, these violent symptoms are often entirely removed. No other means are so efficient as a well-constructed and properly-applied apparatus for this purpose. As the formation of a new socket can take place on different parts of the surface of the haunch-bone, it is most desirable that it should do so as near as possible to the natural one, in order that the limb may be shortened as little as possible. For this reason, by the application of the apparatus, our object is to overcome the action of the muscles, to produce elongation, and form a new socket which will effectually sustain the limb.

“It is wonderful what effects these mechanical contrivances have upon the constitution of the patient, by alleviating the pain; how quickly the abscesses heal, and how much the deformity is lessened thereby.”

It is to be regretted that the construction of the apparatus employed in the Hamburgh Hospital is not more fully explained; it is, however, evident that, in the treatment of these cases, the greatest reliance is placed on the maintenance of perfect and uninterrupted rest of the affected limb in the early periods of the disease, and in the latter stages, by keeping up a gradual extension, so as to overcome the spasmodic action of the extensor muscles, which, according to the

opinion of Drs. Fricke and Taudtmann, when dislocation has taken place, not only tends to increase the deformity by further shortening of the limb, but also adds to the inflammatory condition of the part, by the friction of the head of the thigh-bone upon the dorsum of the ilium.

Without going into detail as to the medical treatment, the object of these pages being more particularly to direct attention to the mechanical management, I will mention some of the more important remedies which have from time to time been advocated.

Such remedies as have been found efficacious in scrofulous cases generally, are most to be relied on. The different preparations of iodine have perhaps been most extensively used, and I believe the best method of administering them is that recommended by Lugol. His iodurated mineral water is prepared in the following manner:

	No. 1.	No. 2.	No 3.
R Iodine . . . . .	gr. $\frac{3}{4}$	gr. i	gr. $1\frac{1}{4}$
Iodide of potassium	gr. $1\frac{1}{2}$	gr. ii	gr. $ii\frac{1}{2}$
Distilled water . . .	8 oz.	8 oz.	8 oz.

Of the solution No. 1 he gives to a child two thirds daily during the first fortnight ; in the second fortnight he gives the entire quantity, or three fourths of a grain—varying the dose according to the peculiarities of the case. During the fourth fortnight or the beginning of the fifth, he gives one grain daily to the end of the treatment ; in some cases increasing it to  $1\frac{1}{4}$  grain, and still more rarely to  $1\frac{1}{2}$  grain, but never beyond this quantity.

Mr. Tuson, in a recent number of the 'Medical Times,' strongly advocates the administration of proteine. He was in the first instance induced to make trial of this substance in cases of caries of the bones, upon being made acquainted with Liebig's researches in animal chemistry, inferring that, as proteine enters largely into the composition of all the animal structures when in a healthy condition, the want of the chemical basis might encourage the developement of diseased structure, and, in a measure, prevent the restoration of certain parts, and, consequently, that it might be found to act as a powerful nutritious tonic in cachectic diseases generally. Mr. Tuson says: "I have prescribed it extensively with very beneficial results, and can recommend it as a medicinal agent, and one calculated to produce a favorable termination in most cases of caries; also in some cases of scrofula, extensive ulcers, debility, diseases of the gums and teeth, rickets, undue lactation, and insufficient secretion of milk. In infancy, where debility exists, and where the functions are not properly carried on, and in some affections of the spine, five grains once or twice a day will be sufficient for a child, and ten or twelve grains for an adult; and I have ordered it to be taken as a powder, dry, or upon bread and butter."

Within the last few years, the cod-liver oil has established a reputation which bids fair to supersede all other remedies in the treatment of this class of cases. At the Verral Institution we have had ample opportunity of testing its extraordinary virtues, and have

employed it in numerous instances with the best possible results. In the course of my practice I never remember to have seen the peculiar efficacy of a remedy better exemplified than in the following case, the particulars of which are inserted with the permission of the child's parents :

Master Russ, Hermitage place, Islington, two years ago was observed to limp when walking, and to complain of pain in the knee and hip. He was taken to Sir. B. Brodie, who ascertained that he was suffering with incipient disease of the hip-joint. Rest in the recumbent posture was ordered to be maintained for five or six months : steel wine and occasional aperients were prescribed. At the expiration of three months he ceased to complain of pain of the hip and knee, and perfectly regained the use of his limb ; but it was observed that one of the dorsal vertebræ had become more prominent than the others, and he rapidly acquired a stooping gait, and appeared to be losing the power over the lower extremities. He was brought to the Verral Asylum to be received as an in-patient, where he remained four months. At the time of his admission, the posterior projection was considerable, involving four or five of the lower dorsal and upper lumbar vertebræ, attended with extreme debility and partial paralysis of the lower extremities. In the month of April last, I was summoned to him on account of a swelling of the right groin, which proved to be an abscess pointing in that situation. Three months after, it burst in the inner part of the thigh, about two inches

below Poupart's ligament, discharging more than half a pint of matter, which continued to come away daily in large quantities. His health rapidly declined; hectic symptoms and colliquative sweats threatened an unfavorable termination of the case. I now prescribed for him the cod-liver oil, in doses of three tablespoonfuls during the day. At the end of the first week his appetite improved; he had perceptibly gained flesh, and was in every respect much better. The cod-liver oil was continued about ten weeks; and he has since been strong and well, and has recovered with the least possible deformity.

“The *modus operandi* of the oil\* may be said to consist in stimulating the lymphatic glands and vessels, and by these means increasing the activity of the capillary system. By its action on the former, the process of assimilation is facilitated, and the appetite increased. The quality of blood is thus improved; and so, lastly, the different organs and structures of the body become better nourished, and receive more *turgor vitalis*.

“Some are of opinion that, in producing these effects, the oil acts as a specific, and consider that in scrofula and rheumatism it is as much to be praised as quinine in intermittent fever. The discovery of iodine being contained in it, however, has induced most practitioners to attribute the active properties of the oil to this substance. But long before the discovery had taken place,

\* See an excellent treatise on the *Oleum Jecoris Aselli* (Cod-liver Oil), by Dr. J. H. Bennett.

it was well established that its use was attended with great success in many of those cases in which many practitioners had given small doses of iodine with benefit. It was this fact, indeed, that first led Kopp to suppose it existed in the oil. In this respect, therefore, the oleum jecoris aselli somewhat resembles the old remedy of burnt sponge in cases of bronchocele, before ever iodine was known to chemists. It has also been proved by practical observation that the oleum album is comparatively inert, and that the yellow and brown kinds possess the greatest medical virtues; and chemical research has since proved that the proportion of iodine is much greater in the last two than in the former.”\*

During the last few years I have employed this latter remedy very extensively, not only in cases of morbus

\* *Test for Cod-liver Oil.* Mr. C. Hockin, of Duke street, Manchester-square, proposes the following test to ascertain the presence of iodine, which I have constantly employed:

“Mixing together on a porcelain slab, four parts of genuine cod-liver oil and one part of strong sulphuric acid, and stirring with a glass rod a beautiful and rich violet colour, similar to that of the fumes of iodine, is produced, which in a few minutes passes gradually into a dirty brown; the altered portion of the oil separates into irregularly-shaped patches from that out of the reach of the acid. This remarkable characteristic is not possessed by either the olive, almond, seal, whale, or fine sperm, nor do I believe by any other fat oil. The reaction varies in appearance from a delicate fawn to dark caramel. The latter is produced with several samples of very light cod-liver oil found in the market, a circumstance that induces me to think they have been bleached with chromic acid, or some other powerful deoxidizing agents, thus decomposing all the gelatinous principle so abundant in genuine cod-liver oil.” (Med. Times, Sept. 23, 1848.)

coxarius, but in scrofulous caries of the vertebræ, strumous glandular swellings, and enlargement of the wrists and ankles, and in rheumatic affections of the joints, with almost uniform success; also in cases of diseased spinal column, accompanied with enlargement of the mesenteric glands, a complication very frequently to be met with in strumous children. I have generally prescribed a dessert-spoonful three times a day for children of ten or twelve years of age, and a tablespoonful or more for an adult. However nauseous and disagreeable it may be for the first few doses, it will generally be found that after a short time this wears off, and the flavour will not be objected to. It may be taken very conveniently in a little mint-water, or what is much better, orange juice, if it can be obtained.

In the latter periods of the disease, when, in consequence of the painful and swollen state of the parts around the hip-joint, the least movement of the body, or pressure upon the part, gives rise to intense suffering, the position of the patient becomes one of the most important considerations in the treatment, and a variety of methods have been proposed for the prevention of the contraction of the limb, and the escape of the head of the thigh-bone from the acetabulum. All the plans hitherto proposed have proved useless, or nearly so, from the simple fact that they can seldom be borne. The long splint used for fracture of the neck of the thigh-bone has been recommended by most writers on the subject. But to produce extension by this means, the patient must maintain the supine pos-

ture, in which position the pressure upon the affected hip soon becomes intolerable. Moreover, I have constantly found that the knee cannot be sufficiently straightened to admit of its application; and whatever caution is observed in padding the upper portion of the splint where it passes over the hip, there must still be considerable pressure against the great trochanter, and the head of the bone is forced against the inflamed cavity of the acetabulum. To convince myself of the truth of this statement, I have lately removed two of my patients from the prone couch upon which they had been lying for some months, and substituted the long splint: in both instances it was removed in a few hours at their request, and the old position resumed.

The double-inclined plane has also been recommended, but the same objections may be urged against its use, viz. the pressure it exerts against the buttock and parts about the hip-joint.\*

Sir B. Brodie says "When the cartilages of the hip are ulcerated, the patient should be confined to his bed or couch, being never allowed to move from it on any occasion. If left to himself, he is generally inclined to lie on the side opposite to that of the disease. There are, however, good reasons why this position should be avoided, if possible. It necessarily distorts

\* An operation has lately been practised at some of the London hospitals for the cure of caries of the head of the thigh-bone, and for the relief of the subsequent deformity, namely, excision of the head of the bone, for an account of which see papers by Mr. Henry Smith, in the 'Lancet,' April 15, 1848. Also Professor Syme's Observations in the 'Medical Times,' December 30, 1848.

the pelvis, and increases the disposition to a lateral curvature of the spine. It also, in those cases in which the round ligament of the joint is destroyed, facilitates the escape of the head of the femur from the acetabulum, and the production of dislocation. Something may be done towards preventing this last, by interposing a pillow or thick cushion between the knees; and it is difficult to do more than this, after the patient has already been lying on his side for a considerable time; otherwise he should be placed upon one of the bedsteads invented by Mr. Earle, lying on his back, with the shoulders and thighs somewhat elevated, and the latter as nearly as possible parallel to each other. On some occasions, however, it is convenient to fix the pelvis by a strap or bandage passing over it from one side of the bedstead to the other; and even the thigh may be fixed in the same manner. At a later period, when, in consequence of the extensive destruction of the articulation, the muscles begin to cause a shortening or retraction of the limb, I have found great advantage to arise from the constant application of a moderate force, operating in such a manner as to counteract the action of the muscles. For this purpose an upright piece of wood may be fixed to the foot of the bedstead, opposite to the diseased limb, having a pulley at the upper part; a bandage may be placed round the thigh above the condyle, with a cord attached to it passing over the pulley, and supporting a small weight at the other extremity. I will not say that the effect of such a contrivance is to prevent the shortening of the limb

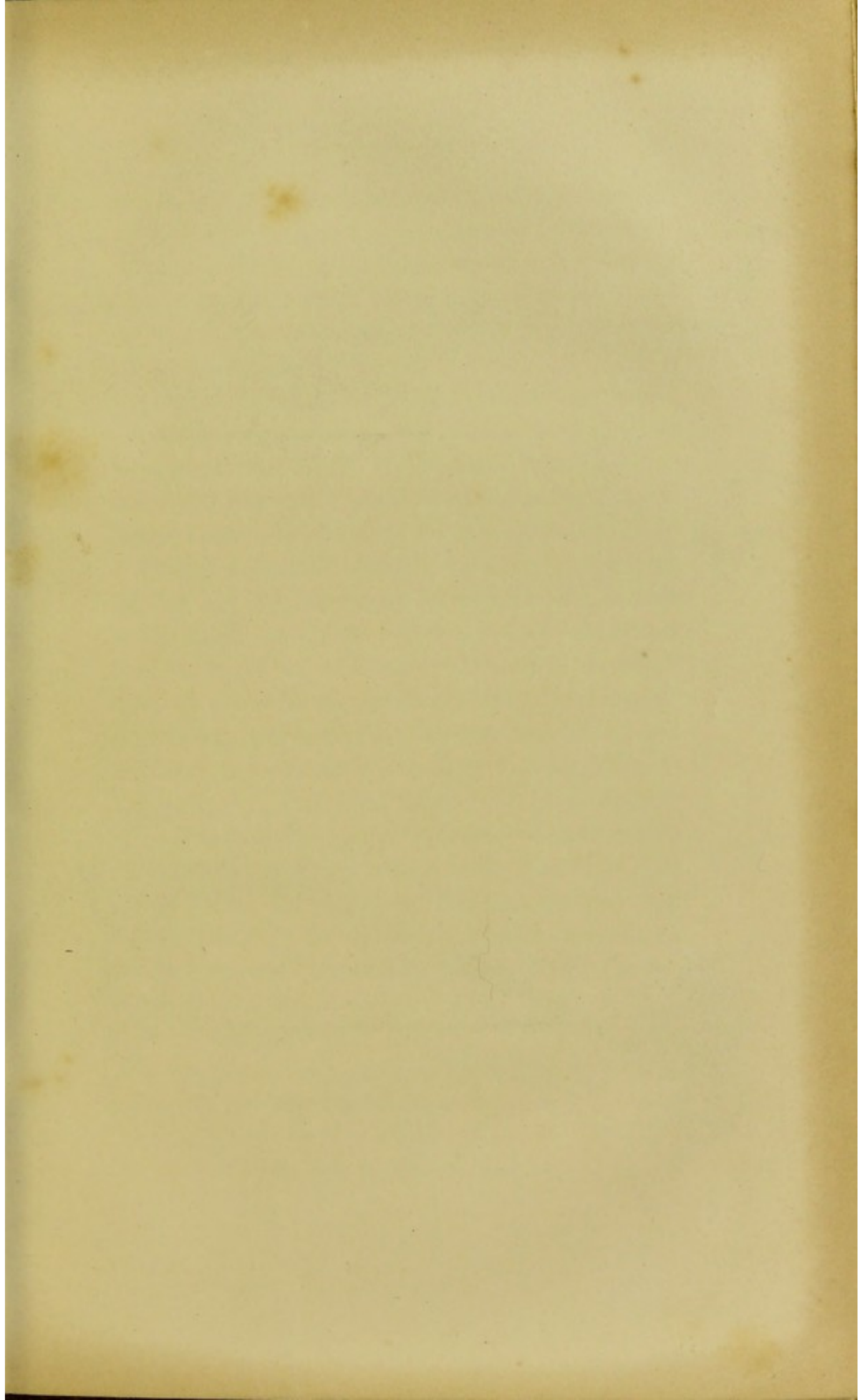


Fig 1.

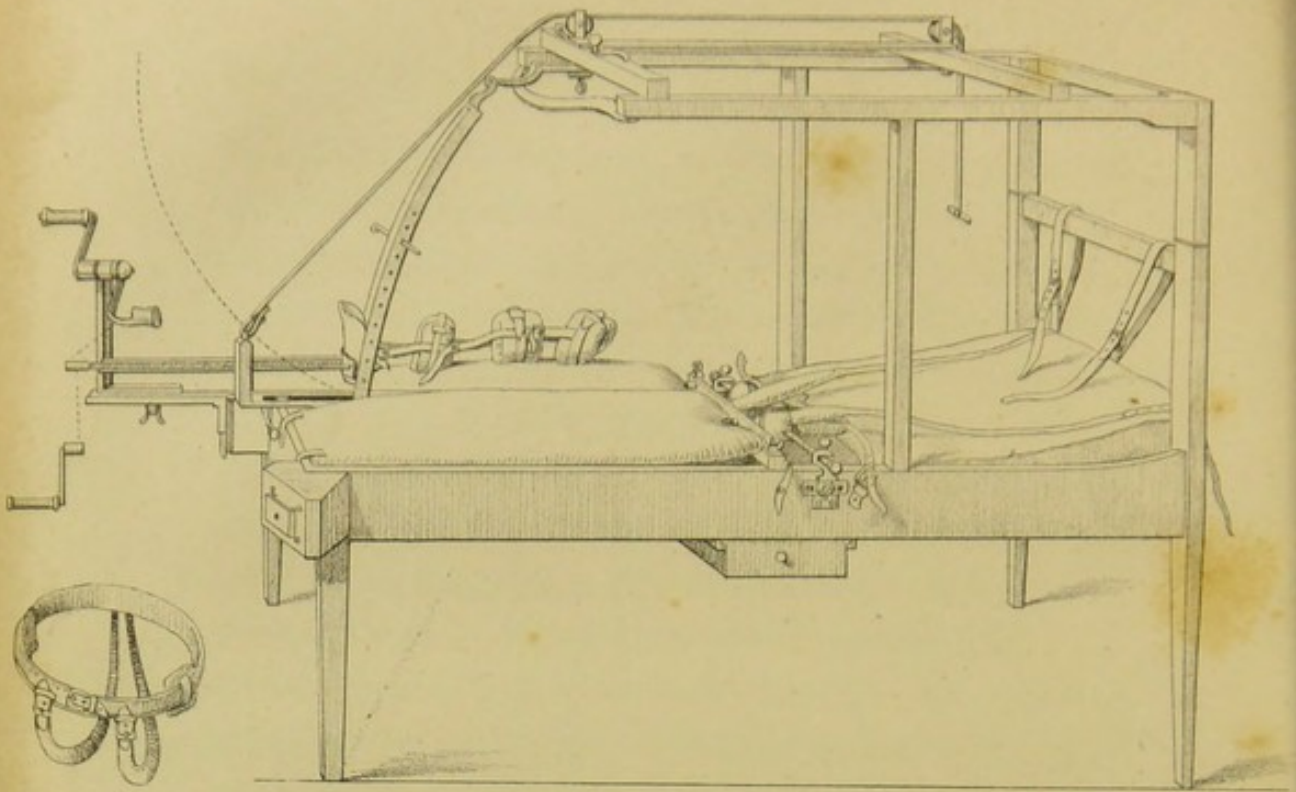
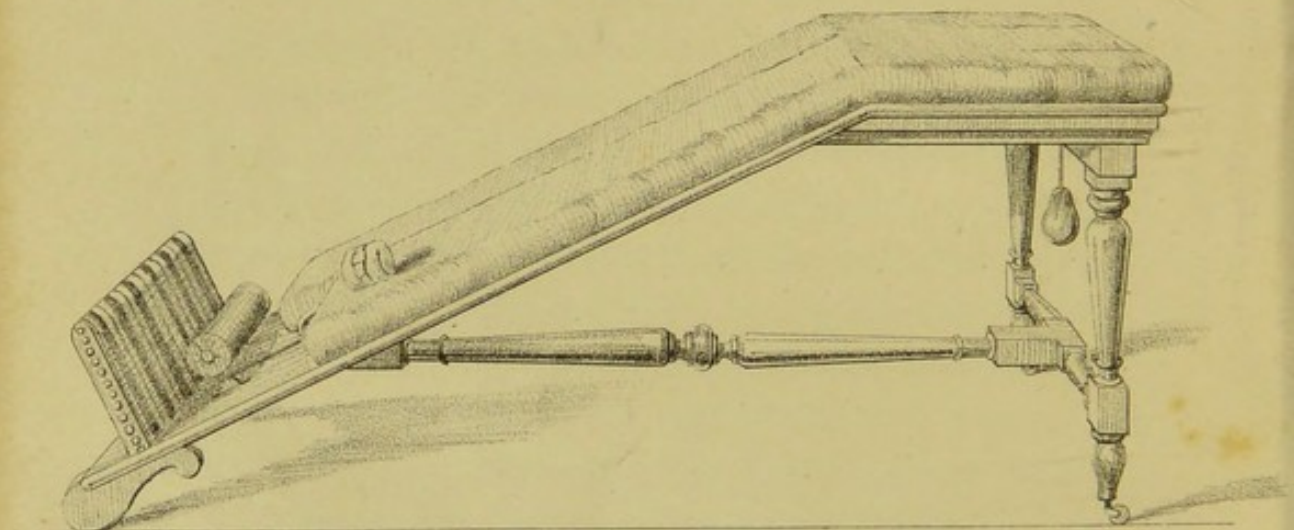


Fig 2.



altogether, but I am satisfied that it will, in a number of instances, render it less than it would have been otherwise; at the same time preventing or much diminishing that excessive aggravation of the patient's sufferings, with which the shortening of the limb is usually accompanied."\*

I will now describe the apparatus I have employed, and recapitulate the advantages to be gained by it. A reference to Plate No. 2, Fig. 2, which represents the couch, and Plate No. 1, which shows the position of the patient upon it, will facilitate the description.

The prone couch consists of a horizontal plane about two feet in width, the length of which is determined by the height of the patient, being made to extend from the top of the sternum to the bend of the hips; upon the upper portion of this is placed a moveable chest-board, which slightly elevates the chest and shoulders, and the whole is covered with a soft horse-hair mattress. Depending from the horizontal plane at an obtuse angle, is an inclined plane about four feet in length, covered also with a similar mattress, but divided along the centre, so that one portion (that corresponding to the affected side) can be made to extend by means of a sliding framework; the moveable portion is furnished with a padded leathern strap placed at the lower part.

The upper and horizontal part of the couch is supported by two legs, the height of which is determined

\* Brodie on the Joints, pp. 145-6.

by the length of the inclined plane, the lower end of which rests upon the ground.

When the patient is placed upon the couch in the prone position, as represented in Plate No. 2, supposing that extension of the contracted limb is required to be made, it is easily accomplished by fixing the padded strap around the ankle, and attaching the weight to the frame of the sliding mattress. The weight required will generally be from three to five pounds, or more, according to the age and muscular strength of the patient to be operated upon, and can be best regulated by using a bag containing the necessary quantity of shot.

The weight being attached to a cord passing over a pulley, and hanging beneath the upper part of the couch, may at any time be removed by the patient, should the traction be found to produce uneasiness at the hip-joint.

A table or reading-desk is made to draw out in front, and is a very convenient contrivance.

In the early stages of morbus coxarius this position will be found extremely easy to the patient, by affording perfect rest to the affected limb in a slightly flexed direction, in which position the muscles situated around the joint are in a more or less relaxed condition, and all pressure is removed from the affected part.

It affords the greatest facility for the application of any topical remedy that may be required.\*

\* This apparatus has been constructed for me by Mr. Young, upholsterer, No. 3, Chapel street, Bedford row.

The hip-shield being also employed, the hip-joint is rendered perfectly immoveable, and all tendency to contraction of the limb is obviated.

In the latter stages of the disease it entirely removes the tendency which all persons afflicted with morbus coxarius acquire, of lying upon the side opposite to that of the disease, by which lateral curvature of the spine and the obliquity of the pelvis is produced.

When the inflammation of the joint is sufficiently subsided, should shortening and contraction of the limb have already taken place, the extension-apparatus will, I am convinced, in many instances, be found a much more easy and effectual method of producing elongation than any hitherto employed. By means of a very simple contrivance, it can be so managed that the patient need never leave the couch for any purpose whatever, an apparatus for defecation being placed at the junction of the horizontal with the inclined plane; and being able to employ himself, and amuse his mind with any sedentary occupation, the irksomeness of his confinement will be considerably diminished.

It is scarcely necessary to remark that, in the early periods of the disease, while the limb retains its natural length and direction, the extension-apparatus is not required to be employed, and this contrivance may be dispensed with; and that, in cases where the head of the thigh-bone has become united by ankylosis to the pelvic bones, it would be worse than useless to attempt the reduction.

Previously to relating some of the cases which I

have recently treated in the manner above described, I am anxious to direct attention to Heine's treatise upon the Cure of Spontaneous Dislocation of the Hip-joint, a portion of which I have selected for translation. \*

“Owing to the rapid progress of the science of orthopædic surgery during the last ten years, the means which we possess of curing the outward defects of the human body have, happily for suffering humanity, been vastly extended; and latterly, experiments have also been tried with a view to the replacement of the head of the thigh-bone, when it has become dislocated in consequence of disease of the hip-joint. I need scarcely remark, in speaking of these attempts at reduction of the above-named luxation, it is not to be understood that I consider it possible to effect this object in cases where the deeply-rooted and destroying process of the disease is confirmed, and when the extension of the ulceration, and formation of abscesses, have induced such debility of the patient that it is rendered evidently inadmissible; my intention is only to treat of these attempts in cases of spontaneous luxation, in which the primary progress of the disease is arrested on the occurrence of dislocation, without having produced any extensive devastation in the machinery of the joint.

“This cessation of the progress of the disease upon the occurrence of spontaneous dislocation, is not so

\* Ueber spontane und congenitale Luxationen, so wie über einen neuen Schenkelhalsbruch-Apparat, von J. Heine, Dr. der Medizin und Chirurgie, Gründer und Vorsteher der orthopädischen Heilanstalt zu Cannstatt.

unusual as has been supposed and believed; and to this class of cases belong the four treated by me with surprising success, and which will form the subject of these papers.

“Although my deceased uncle (the late Professor Heine) had, long since, made some attempts of the same kind, the merit of having first submitted the subject to scientific consideration, is due to Dr. Humbert, who, with M. Jacquier, published an essay on the subject, in the year 1835.\* They effected a reduction in six cases of spontaneous luxation; but, unfortunately, the history of these cases is not given with sufficient precision.

“Jaeger, whose authority is with justice so highly valued, on the subject of diseases of the joints, in his *Surgical Dictionary* (vol. 1, p. 596), says: ‘Upon spontaneous dislocation taking place, long-continued rest only has been generally recommended, in order that the inflammation may subside, and an artificial joint be formed; but as it is well ascertained that in some cases, after a lapse of time, spontaneous replacement of the head of the bone, which had been thrown out of the hip-socket, has been known to occur, the question arises, may not a peculiar treatment be adopted to produce a like effect?’

“Berdot (*Act Helvet.*, vol. iv, p. 236) reduced the head

\* *Essai et Observations sur la Manière de réduire les Luxations spontanées, ou symptomatiques, de l'Articulation ilio-fémorales; méthode applicable aux luxations congénitales, et aux luxations anciennes par cause externe.* Par M. François Humbert, Méd. orthopédique à Morley, et par M. N. Jacquier, Docteur Médecin à Ervy. Paris, 1835.

of the thigh-bone dislocated (by disease of the hip-joint) upon the dorsum of the ilium, by means of pressure.

“Ficker (*Med.-Chir. Ztg.*, 1807, vol. iv, p. 381) and Thilenius (*Hufeland's Journal*, 1816, Mai, 102) cite similar cases.

“Mozilewsky (Schreger in *Horn's Archiv*, 1817, i. 316) undertook the experiment three times with success. In the first case, a dislocation of several weeks' standing was lengthened to the extent of several inches, the operation being unattended with difficulty, but the dislocated limb required to be constantly supported in its position. In the second case the reduction was accomplished in the space of nine months, and in the third the limb lengthened, after five weeks of continued extension.

“Schneider (*Chir.-Geschichten Chemnitz*, 1763, ii, 77) succeeded in the replacement of the head of the thigh-bone, but without perfect success, as, in spite of the splint placed inside it, it continually became again displaced. The same happened in a case by Schreger, but to reject the attempts on this account, and to consider the success impossible, as many have done, is opposed to the observations above quoted. Let it always be attempted, and if it should not succeed, let the treatment recommended by Volpi, Schreger, Al. v. Winter (*Harless Jahrbuch der deutschen Med.* 3, 1) be employed—viz., gentle and gradually increased extension, in conjunction with baths and friction, in order partly to mitigate the violent pain, which frequently still continues, partly to support the thigh in a straight

position, and particularly in children, to prevent the contraction of the limb, or even, by degrees, to accomplish the complete reposition.

“The most brilliant success of this kind in late years has been attained by Dr. Bernh. Heine, in Würzburg ; he employed these means in the case of a girl of eleven years of age, who had suffered from a dislocation of eight years’ standing, with a shortening amounting to three inches, attended also with a considerable curvature of the vertebral column. By means of continued gradual extension during the space of one year, the head of the bone not only regained its place in the socket, but the motion of the joint was as perfect as that of the sound limb, and the girl could even dance. A more explicit description of the case and treatment is not given.

“Chelius also expresses himself in favour of like attempts at reduction (p. 148, vol. i, of his *System of Surgery*, fifth edition). He says: ‘Should the head of the thigh-bone be thrown out, and the disease become arrested, then, by means of long-continued rest, an artificial joint is formed ; and when the patient begins to walk, he must support himself as much as possible, beginning with crutches, and afterwards with a raised shoe, corresponding to the degree of contraction. The considerable degree of lameness, and in children especially, the frequent tendency to contraction of the thigh, has led to attempts at reduction of the dislocation, and the results obtained are well calculated to induce a cautious repetition of these experiments ; the limb must

be afterwards supported in a proper position, which may be best done by Hagedorn's apparatus for fracture of the neck of the thigh-bone. If the reduction cannot be effected, endeavours must be made to fix the extremity in a straight direction, and to maintain the head of the thigh-bone as near as possible to the socket, by gentle, gradual, and continued extension, and thus the length and direction of the extremity may be considerably improved.'

"From the nature of the circumstances under which the reduction is attempted, it frequently happens that it does not succeed; and, indeed, if not managed with proper circumspection, disastrous consequences may ensue; but to reject these experiments on this account, and to consider their (Petit, Callissen, and others) success impossible, and to believe that if they really do succeed, the head of the thigh-bone cannot be maintained in the acetabulum, is opposed to the results obtained by Jaeger and others, and my own observations."

The admirably-contrived apparatus employed by Dr. Heine for the cure of spontaneous dislocation, and applicable also to cases of fracture of the neck of the thigh-bone, and for the reduction of recent dislocations from violence, has not, I believe, at present been introduced into this country. The results obtained by him appear to be so satisfactory that the following description, with the annexed representation taken from his treatise, may be considered useful. (See Plate 2, Fig. 1.)

It consists of a framework in the form of a press bedstead, covered with a well-stuffed bordered mattress,

divided into two unequal parts, the lower portion of which is attached to the upper and longer, by means of jointed bands, the upper part is suspended to the head of the bedstead by two straps, at a more or less obtuse angle; a padded piece of wood crosses the bedstead at the division of the two mattresses, and which, by means of screws, can be fastened higher or lower, according to the length of the patient. A narrow, soft, smaller mattress, which terminates at the upper end with a flexible hinge inserted into the transverse ledge, has at its extreme end the necessary contrivances for extension, and a machine by which it is fixed. A leather strap about two inches in breadth, furnished with two small moveable cushions, is passed through buckles fixed to the side of the bedstead above the transverse ledge.

In employing this apparatus, the patient is placed with the upper part of his body somewhat raised; the anus is made to come over the padded cover, under which a convenient contrivance for defecation is placed, and the extremity to be operated upon, is received on the centre of the extension-mattress. While an assistant holds the foot, the surgeon conveys the pelvis-straps over the pelvis, adjusts the cushion over the crests of the ilium, so as to prevent any pressure upon the abdomen, and buckles the strap tolerably firm. The padded shoe, which is plated on the outside with tin, and which is attached to an endless screw, must now, by means of the straps, be buckled to the three soft-lined leg-rings, and screwed up by the winch until the sole

of the foot rests upon it. The leathern rings are now buckled to the ankle, calf, and above the knee, and traction is slowly and carefully performed by the winch, until the foot which is being operated upon has attained the same length as the other; but should the body glide down in consequence of the pelvis being insufficiently fixed, this can be remedied by adjusting and fastening the thigh-straps either on the diseased side alone, or both at the same time. For this purpose the thigh-straps must be drawn through the rings, placed on the flat under side of the transverse ledge, and brought over the inguinal region of the body, and under the arms, and fastened to the two buckles which are found at the extreme end of the bedstead; but in many cases of fracture of the neck of the femur no great degree of extension is necessary, and this addition may be dispensed with. In cases where the thigh-strap is not required, and the dislocated bone should incline to either side, this can easily be obviated by means of the shifting side cushions, or some other contrivance.

In the drawing which is given of the above apparatus, it is supposed to be suited to a case of dislocation or fracture of the right side. In order to make it available for the left extremity, the extension-apparatus must be placed on the left side.

Heine says the advantages of the above apparatus may be summed up in the following observations:

“The patient is provided with a comfortable bed.

“With the exception of the limb to be operated

upon, and the pelvis, the rest of the body is not constrained in its movements by any kind of bandages.

“The length of the affected limb can be compared at any moment with that of the sound one.

“Should it again become displaced, the limb can be extended to the necessary degree by means of the windlass, without the necessity of altering the position of the patient.

“By means of the padded and plaited shoe, in which the foot has a firm and sure position, any tendency it may have to turn inwards or outwards is rendered impossible.

“The reason for having added the nut-rings at the upper end of the extension-mattress to this apparatus for fractured neck of the thigh-bone, arose from the idea that it might probably be made useful also in cases of dislocation from accident, the reduction of which cannot be effected by simple extension, but demands the use of the pulley. By this means, as occasion may require, and according to the direction in which luxation has taken place, the limb may be moved inwards, outwards, upwards, or in a circular direction. The patient in such a case should be placed in the same position as before described, the pelvis fixed by means of the pelvis and thigh straps, as in fracture of the neck of the thigh-bone.”

Of the four cases, the history and treatment of which form the subject of Dr. Heine's Treatise, the results obtained were in the last degree satisfactory—the affected limb in every instance maintained its normal

length and position ; and in one case it was ascertained, by a post-mortem examination, that the head of the bone retained its permanent situation in the hip-socket.

In these four cases, a certain similarity was observed in respect to the age and constitutions of the patients, as well as in regard to the cause, details, and issue of the early progress of the disease, and in respect to the appearances observed during the attempts at reduction. The youngest of the patients was sixteen years of age, and the eldest nineteen ; all four possessed well-developed osseous systems, and constitutions apparently free from scrofula ; in early life they appeared also not to have suffered from any scrofulous complaints.

The active symptoms of disease of the hip-joint had in each case entirely subsided at the time the patients applied for admission into the hospital. In one case it had gone through its course in the space of six months, in another in eight months, and in the two others in about ten months. The head of the thigh-bone could be distinguished in every instance resting upon the flat surface of the dorsum of the ilium, and the great trochanter very prominent, as represented in the drawings of his cases. There were no swellings in the vicinity of the hip-joint ; and in three of the cases the head of the bone was distinctly moveable in its new situation.

In all the four cases the extremities gradually lengthened without any considerable difficulty, and the time required to complete the reduction was in the first case twenty-eight days, in the second thirty days, in

the third twenty-three days, and in the fourth thirty-five days.

Finally, there was this conformity in three of the patients, that, at the moment when the head of the thigh-bone glided into the acetabulum, a certain sensation was experienced, by which they were made aware of what had taken place, and in two cases it was also heard; and after this fortunate circumstance there was no tendency to a return of the displacement upon removal from the extension-apparatus. At the time of publishing his treatise, in the year 1842, Dr. Heine had also employed these means successfully in nine other cases of spontaneous luxation; and had attempted the cure of eleven of congenital luxation, but not with the same good results.

I have here devoted as much space to the description of Dr. Heine's apparatus, and the results obtained by the means he has employed, and also to the translation of portions of his work upon the Cure of Spontaneous Dislocation, as the limits assigned to this short treatise will permit. The subject has not, that I am aware of, been hitherto introduced into this country; moreover, the very successful issue of his cases tends most positively to subvert the opinion generally entertained, that they admit of little or no relief, and affords a direct corroboration of the views which, from conviction, I have long entertained upon the subject. The principal portion of his treatise is occupied with the history of the cases in which he succeeded in effecting the reduction, and they are related with the

most scrupulous minuteness. There is one circumstance which I think is especially worthy of attention, namely, the position of the dislocated limb, the foot being, in each of the four cases, everted, a fact particularly mentioned in his treatise, and illustrated in the drawings he has given. In dislocation from accident, when the head of the bone is thrown upon the dorsum of the ilium in an upward and backward direction, the characteristic symptom is the position of the foot, which is invariably pointed inwards, the toes resting upon the instep of the opposite foot. Again, the head of the bone could be distinctly felt in that situation, and moveable, by which it is to be inferred that carious destruction is by no means as constant a consequence of this disease as has been supposed by many English writers.

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## CASE I.

Master B., aged 16 years, of light, delicate complexion, fair, transparent skin, and remarkably strumous appearance. When about nine years of age, received a slight injury of the right hand, and was placed under medical care, on account of the gradual and painful enlargement of the bones of the wrist, obliging him to support the arm in a sling for some months; it has continued weak and enlarged to the present time. About three months after the slight accident alluded to, he began to walk lame, and complained of pain in the hip and inner side of the right knee, which was not constant during the day, but generally came on in the night, and continued for several hours: in two months' time he became so lame as to require the assistance of crutches, and says that he experienced considerable difficulty in sitting down, only being able to do so by carefully placing himself upon the right-hand corner of the chair, so as only to press upon the sound side, and then cautiously resting the foot of the affected side upon the ground. Leeches were repeatedly applied to the hip, and he was for some months confined to his bed; but notwithstanding the treatment, an abscess gradually formed in the fore part of the thigh.

He was then brought to London, and placed under the care of a surgeon in town. After a time the abscess

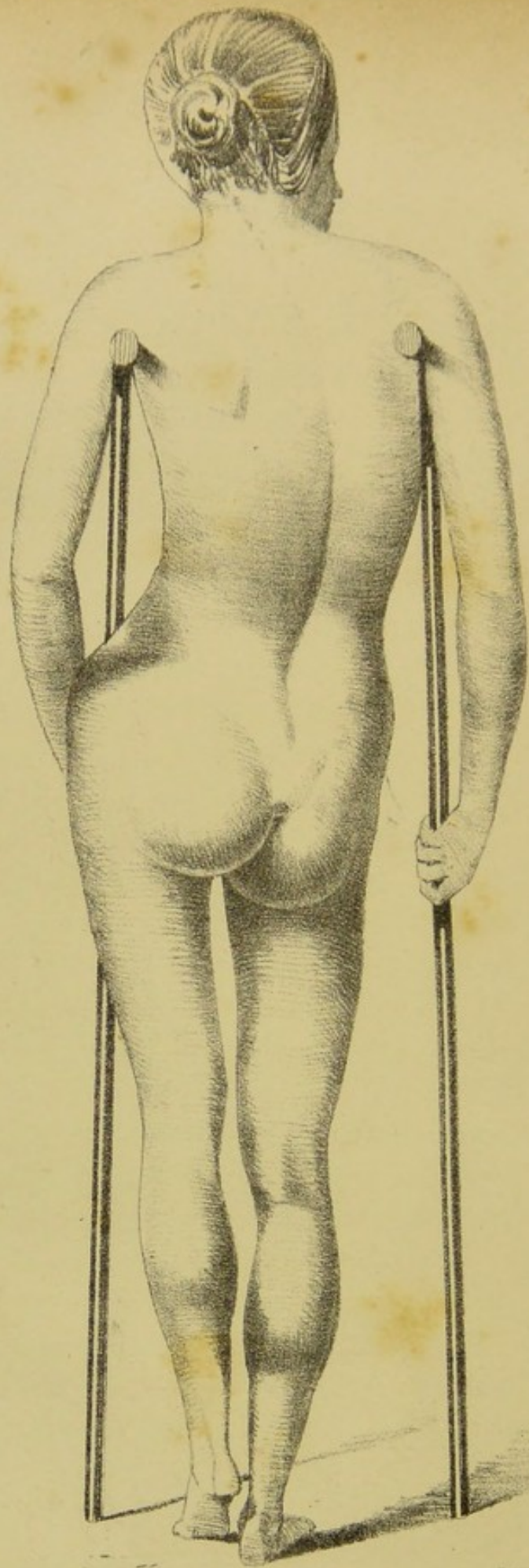
appeared to disperse, his health improved, and hopes were entertained of his ultimate recovery without much lameness, as he was able to get about with the assistance only of a walking-stick. Two years ago the upper part of the chest was observed to have become more prominent (although he had always that conformation which is denominated pigeon-breasted). Upon examination, it was discovered that the spinal column was growing out in the situation of the lower cervical and upper dorsal vertebræ; and he began to require the assistance of a servant to support him in walking, on account of the gradual failing of the strength of his limbs, and having several times fallen down from sudden loss of power, and what he describes as "the catching up of his legs." When placed under my care, in the month of July 1848, his condition was most deplorable. A considerable angular curvature existed in the upper portion of the spinal column; the sternum projected forward to some extent; an immense abscess occupied the situation of the upper and fore part of the thigh; sensation and voluntary motion were totally extinct in the lower half of the body, and the involuntary spasmodic action of the lower limbs was most distressing. The sphincter muscles of the bladder and rectum had ceased to exert their contractile power, and the urine and fæces were passed involuntarily. There was scrofulous enlargement of the wrists and ankles, a shortening of the affected limb of at least three inches (not from dislocation at the hip-joint, as I was able to ascertain by measurement, but owing to

the obliquity of the pelvis and lateral curvature of the spinal column). When lying in bed (always on the left side), the limbs were spasmodically contracted, the thigh flexed upon the abdomen, and the leg upon the thigh.

When placed in the prone position, it became necessary to secure the legs by means of bandages, and thus the spasmodic contraction was in a short time overcome in a remarkable degree. Two large caustic issues were kept discharging on each side of the spinal curvature; and during the first month he was ordered the *tr. ferri sesquichloridi*, in doses of twenty drops twice a day, in ginger tea, a full meat diet, and such occasional medicine as the circumstances of the case required. In the early part of September he began to experience some degree of sensation in the limbs, and the urine no longer passed involuntarily. The matter of the abscess had gravitated to some distance down the thigh, and had pointed near to the surface. I evacuated its contents by a small incision; about half a pint came away, consisting of curdy matter and healthy-looking pus, containing no particles of bone. He commenced taking the cod-liver oil, in doses of one tablespoonful three times a day, which he has steadily persevered with to the present time. The abscess has nearly ceased to discharge, and his improvement has been steady and progressive. The sensation of the limbs is now perfect, and a considerable amount of voluntary motion has returned; he has also perfect control over the bladder and rectum. A short time since I deemed

it necessary to remove him from his couch, for the purpose of having it cleaned and aired, as he had not stirred from it for more than four months, and the framework around the bed-pan required repairing. He was placed in a comfortable position in bed, with the intention of remaining there until my next visit (that day week), but in less than an hour the hip and knee became extremely painful, and he begged to be at once replaced upon his couch: he, however, passed the night in bed, suffering intense pain, without having been able to procure any sleep. Early the following morning I was summoned to him, to superintend the removal to his accustomed position, but, at his earnest entreaty, it was accomplished before my arrival; he was then again free from pain, and had enjoyed a refreshing sleep of two hours. Since that time he has never left his couch, nor could he be induced to do so. Throughout the tedious course of this severe case, he has been able to amuse himself in drawing and reading; his appetite has been remarkably good, and his digestion vigorous; the right extremity has lengthened fully an inch and a half, and I have now no fear of shortening and contraction. Almost the only severe pain he has experienced during the time he has been under my care was in the night of his removal from the prone couch.





## CASE II.

Catherine M'Bride, aged 19 years, living at No. 3, Brighton street, Cromer street, Brunswick square, applied for admission September 5th, 1848. She is a remarkably stout and well-grown woman; during her childhood, and up to the age of 16 years, enjoyed uninterrupted good health—never had an illness, with the exception of smallpox, from which she suffered severely,—appears to be perfectly free from any symptom of scrofula. In the month of February, 1846, she first felt an uneasy sensation in the left hip-joint, which increased upon any unusual fatigue. The uneasiness, during the first twelve months, seldom amounted to pain, and never prevented her from attending to her customary occupations, until about nine months ago, when she began to complain of pain in the knee and groin, and could not rest well on the affected side, on account of the tenderness of the left hip; and when sitting at her trade (that of a straw-bonnet maker), she could not bear the least pressure on the buttock, and, consequently, was always obliged to sit in the way I have before described. During the last twelve months, the symptoms of hip-joint disease have gradually developed themselves; the pain of the hip has become very severe, and the knee always more or less affected at night. Previously to her being placed under my care, she was an in-patient at St. Bartholomew's Hospital during the space of ten weeks,

from whence she was discharged in the early part of last August, having received but very little relief. For the last nine months, she had scarcely ever been able to rest in any other position than that represented in Plate No. 3. The left lower extremity, as is there very faithfully represented, was at least three inches shorter than the right, and, at first sight, I concluded that dislocation of the head of the thigh-bone had taken place; but, by careful measurement from the anterior superior spine of the ilium to the upper edge of the patella, I found that both sides exactly corresponded in length. The spinal column was very much curved, and the pelvis remarkably oblique, caused, undoubtedly, by the position she had been obliged constantly to assume in bed, during the last nine months.

September 7th.—She was provided with the necessary apparatus, and requested to remain upon it six hours during the first few days, until she became accustomed to the change of posture, and to return to her bed at night, so as gradually to accommodate herself to it. A large caustic issue, which had been applied over the situation of the great trochanter, while she was in St. Bartholomew's Hospital, and partially healed over, was again smeared with the potassa fusa, and kept discharging with the savine ointment.

September 10th.—She was found resting in a very comfortable position upon her couch; after having resumed it on the second day, she had not since left it, except for necessary purposes; and although I had not given her directions for sleeping upon it, she has done

so each night, experiencing, as she says, so much relief from pain, that she was unwilling to return to her bed: she assured me that she had not experienced so much comfort for more than nine months.

September 16th.—She continues nearly free from pain, with the exception of slight pains in the knee, sometimes during the night; sleeps comfortably on the couch, and considers herself in every respect better. The limb has, in this short time, lengthened itself to the extent of nearly an inch. She commenced taking the following prescription:

R Mist. ferri comp,  $\bar{z}$ iss;  
 Spts. ammon. aromat.  $\mathfrak{m}$ xx.  
 Misce. Ter die sumendus;

and continues the dressing to the issue, which discharges freely.

September 22d.—Yesterday, for the first time this year, she resumed her employment, and finds that she can work with ease upon her couch, having the free use of her arms and upper portion of her body.

The above treatment has been steadily pursued up to the present time; the cod-liver oil was, about a month since, substituted for the steel mixture; for the last two months there has been an entire absence of pain, and her general health has been remarkably good; the menstrual discharge, which had been suspended for eight months, has now returned with regularity, and the affected limb has become elongated to the full extent; in the erect position, both feet can be firmly placed upon the ground, and she does not require the support

of crutches ; forcible rotation of the thigh-bone at present causes slight pain in the hip-joint ; in other respects, the mobility of the joint is as nearly as possible restored, and there is no difference in the length of the extremities ; debility of the limb, and a feeling of stiffness, are now the only remaining symptoms ; and, at present, she has not been permitted to do more than walk about her room for a short time every day.

### CASE III.

Lucy Jelly, aged 12 years, the child of poor parents, residing at Ham Common, was admitted an in-patient of the Verral Asylum, nominated by the Hon. Frederick Tollemache, on the 3d of September, 1847.

The following is the account of her case from the Society's books at that time :—“ She has been very delicate from infancy, and frequently under medical treatment ; about eighteen months since, suffered with constant headache for six weeks, and was afterwards attacked with measles. During the period of convalescence, having left her bed a few days, she began to complain of very severe pain in the left hip, extending down the thigh to the knee ; these symptoms were always most severe during the night, and she was frequently prevented from obtaining any sleep in consequence of the pain ; the hip became very much swollen ; leeches and blisters were ordered, and she was entirely

confined to her bed for the space of six months, suffering more or less during the time, and always resting on the right side, being unable to lie in any other position. When the pain and inflammatory symptoms had in some degree subsided, she was provided with crutches, and allowed to leave her bed half an hour every day for exercise. She has been visited by several surgeons in the neighbourhood. There has been no abscess of the hip, but considerable swelling; never had any glandular swellings."

At the time of her admission into the institution, she still complained of tenderness about the hip, which was considerably flattened posteriorly, and presented the usual appearances indicative of morbus coxarius; the muscles of the limb were much wasted; rotation and flexion caused severe pain in the hip-joint; when supported by the crutches, which she had used upwards of six months, the affected extremity was so much contracted, that the point of the toe only could be made to touch the ground, and that with some difficulty; the heel was consequently raised to the extent of fully four inches; the contraction had very much increased during the preceding three months; the foot was turned outwards, and the spinal column considerably out of the median line.

The course of treatment advocated in these pages was steadily pursued; continual and gradually-increased extension was employed, the patient resting constantly upon the prone couch. During the first month, emollient fomentations were prescribed, and strengthening

medicines administered. From the commencement of this treatment the pain of the hip subsided, and she rested with great comfort; by degrees the limb elongated; after two months she was enabled to plant her foot firmly on the ground; but it continued much everted, and, from the weakness of the limb, she was unable to support the weight of her body upon it; moreover, in attempting to do so, she complained of a deep-seated pain in the hip-socket. At the expiration of four months, she was discharged perfectly cured. The natural motions of the joint were as nearly as possible restored; forcible flexion or extension gave rise to slight pain, and a degree of weakness remained. She was desired to exercise the limb very cautiously, and for some time to support herself with a walking-stick.

Not having received any intelligence of this patient since her dismissal from the asylum, (fourteen months since,) I felt desirous of ascertaining if the cure, in this instance, were permanent, and therefore went to Ham a few days ago for the purpose of seeing her, when I found that my sanguine hopes and expectations were fully realized.

I carefully examined the hip-joint, and ascertained that all the natural movements were properly performed, and although still a delicate child, she is enabled to walk two or three miles without suffering any unusual fatigue, and never complains of pain or any uneasiness.

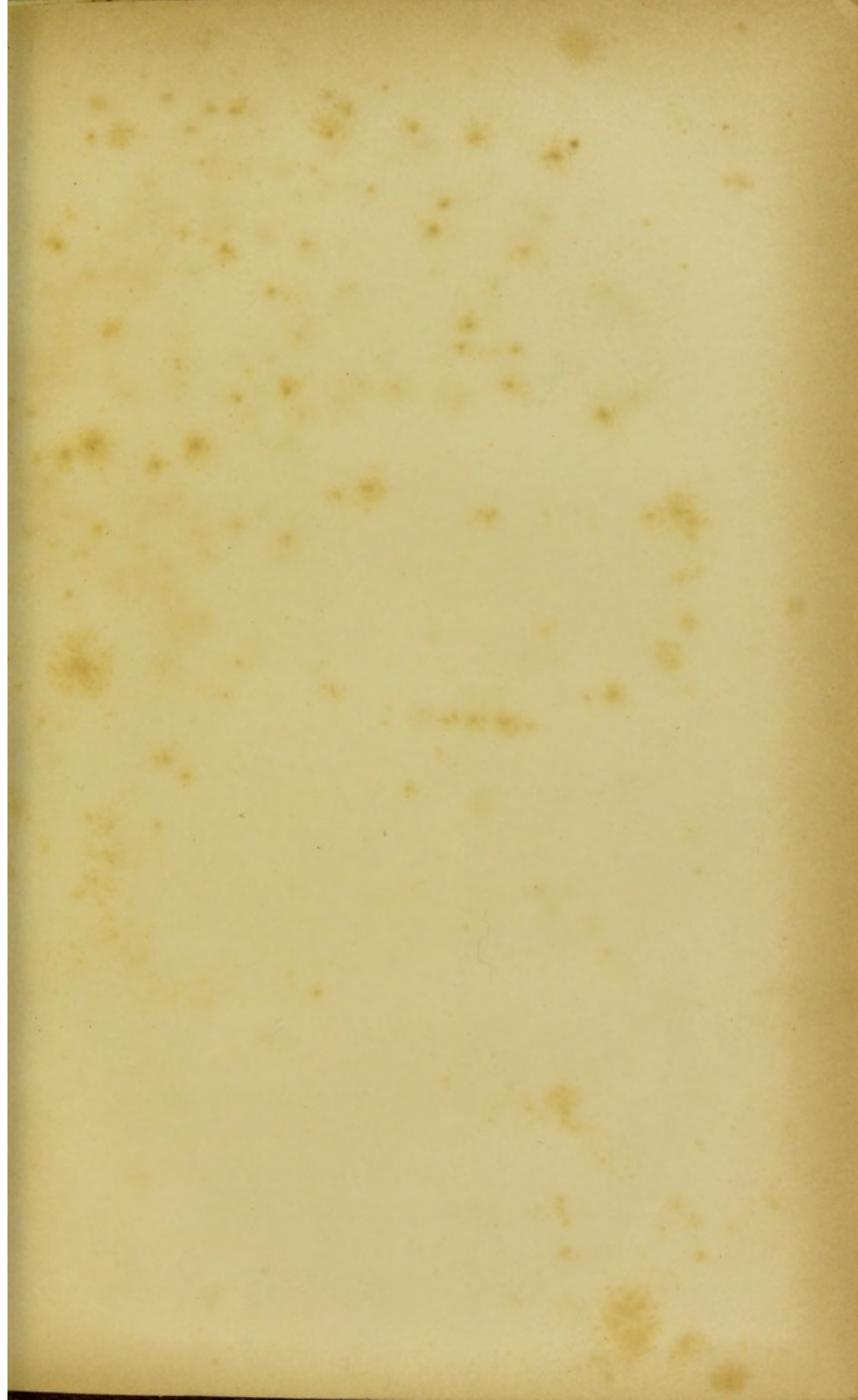
## CASE IV.

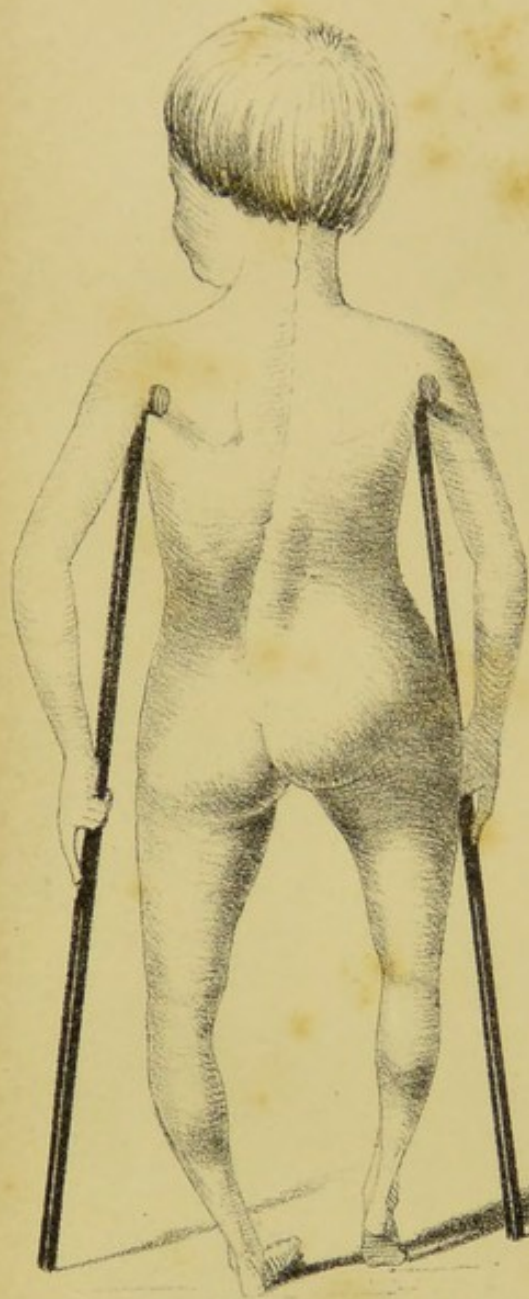
A similar case to the one last cited is that of Eliza Hurry, aged 28 years, who was admitted an in-patient of the asylum in the autumn of the year 1844, and discharged cured in the spring of 1845, the affected limb having perfectly regained its normal length and direction, after a treatment of seven months. I regret that the history and details of the treatment pursued in her case have, by some accident, not been preserved in the Society's books, and I am therefore unable to relate the particulars minutely.

Prior to her admission into the asylum, she had been in service at Tunbridge Wells, and had suffered with inflammation of the hip-joint for several months, the shortening of the limb, as in the preceding case, amounted to upwards of four inches. A large abscess occupied the situation of the anterior part of the joint, which was opened about six weeks after her admission, and which had healed before she left. Her general health being still much impaired, she was advised to pass the summer months at the sea-side; and through the benevolence of one of the patronesses of the Verral Institution, she was enabled to reside at Margate, and became an out-patient of the Sea-Bathing Infirmary. We lately received intelligence of this patient, and were informed that her health was good, the limb had never retracted, that she was enabled to exercise it with perfect freedom, and that there had been no recurrence of any of the symptoms.

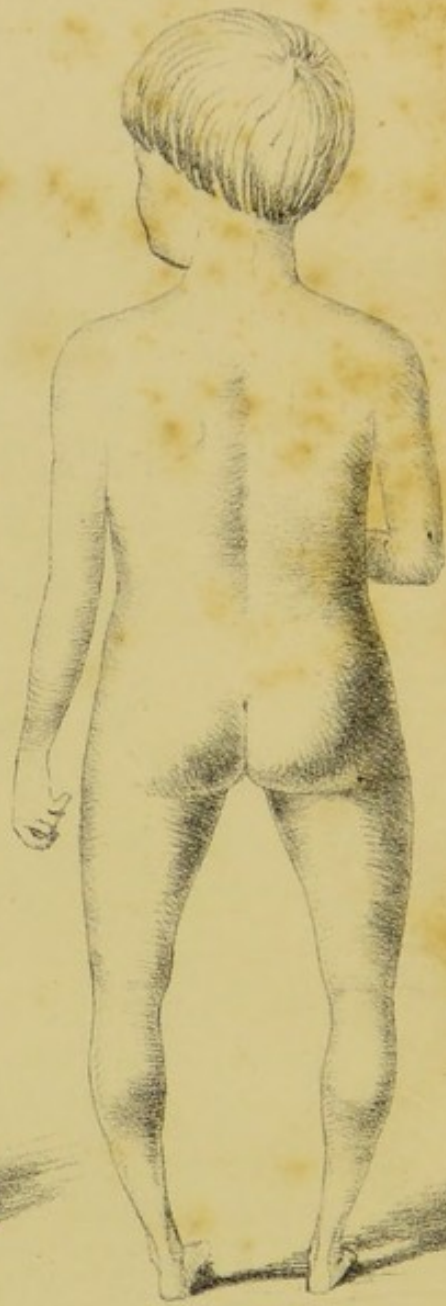
## CASE V.

Miss R., aged 38 years, when seven years of age, was attacked with typhus fever, and a few months after, suffered with acute rheumatism. During the period of convalescence she began to limp in walking, and after the slightest exercise complained of stiffness in the right hip, and occasionally felt a severe pain in the right knee. The symptoms gradually increased in severity; the pain of the knee she describes as having been most excruciating. It invariably came on at night with greater intensity, and lasted until towards the morning. She was again placed under medical care. Leeches and caustic issues were applied to the hip; but it appears that quietude of the limb was never enforced, and she was allowed to walk about with the assistance of a stick. Four years from the commencement of the attack a large abscess formed in the fore part of the thigh, which was opened, and continued to discharge during the space of six months. She was brought to London, and placed in the Asylum for the Recovery of Health, in Lisson Grove, where she remained three years, confined to her bed, and could only rest in the position I have represented in Plate No. 3, viz. on the sound side, with the thigh flexed upon the abdomen, and resting on the opposite one. Her condition at the time she left the asylum was considerably improved; the more active symptoms were relieved, but shortening of the limb to the extent of four or five inches remained; and she suffered





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occasional pains in the hip and thigh, which obliged her to keep to her bed more or less. In the autumn of 1842, suspecting that matter was again forming in the hip, and dreading the necessity of being entirely confined to her bed, she placed herself under Dr. Verral's care a few weeks prior to his death. I continued the attendance upon her for upwards of twelve months, during which time the prone couch was her only resting-place, employing herself in needlework, sometimes as much as ten or twelve hours daily. Preparations of iodine were applied over the seat of the swelling, and the abscess dispersed. Extension by means of the weight and pulley was employed, but in this instance without any permanent good results. The position, however, afforded her wonderful relief from pain; and up to the present time, whenever, from any unusual exertion or derangement of her bodily health, the hip-joint becomes painful, she invariably obtains alleviation from suffering by resting for a week or ten days upon her couch.

#### CASE VI.

Louisa Walker, 12, Red Lion street, Holborn, aged 4 years, was placed under my care October 15, 1847. She was at that time very much emaciated, having recently suffered from a long and painful illness. Mr. Walker has kindly taken some pains to furnish me with the following account of her case. He says: "She was a well-grown and healthy infant until the

age of ten months, when she was attacked with whooping-cough and became delicate, lost flesh, and suffered much with disordered stomach and bowels. About the middle of March, 1847, she was placed under medical care, for the relief of a large swelling of one of the glands of the left side of her neck: an abscess formed in this situation, which, when opened, discharged a considerable quantity of matter; her wrists were also very much swollen. She was confined in bed at that time for a month, and became so reduced, that her life was despaired of. It was then discovered that she had entirely lost the control over the right side of her body, and begun to complain of pain in her knee. The hip became swollen and painful, and the limb was gradually drawn over to the left side, the knee resting upon the opposite thigh, and the sole of the foot upon the opposite instep, and so firmly fixed in that position, that any attempt made to alter it caused the child to scream with pain. Under a judicious management the inflammatory symptoms subsided, and her health improved; the swelling of her hip somewhat diminished, leaving the limb, however, about two inches shorter than the corresponding one." When I first visited the child, I found her squatted down upon the hearth-rug before the fire: she had not the least notion of standing erect; and when placed in a sitting posture on the ground, in that position she was obliged to remain until assisted from it. The limb was remarkably wasted, immoveable at the hip-joint, where there was still some degree of tenderness, particularly when the attempt to straighten the

limb was made. The great trochanter could be felt an inch and a half above its proper level, and the hip on that side presented a remarkably flattened appearance, from the wasting of the glutei muscles.

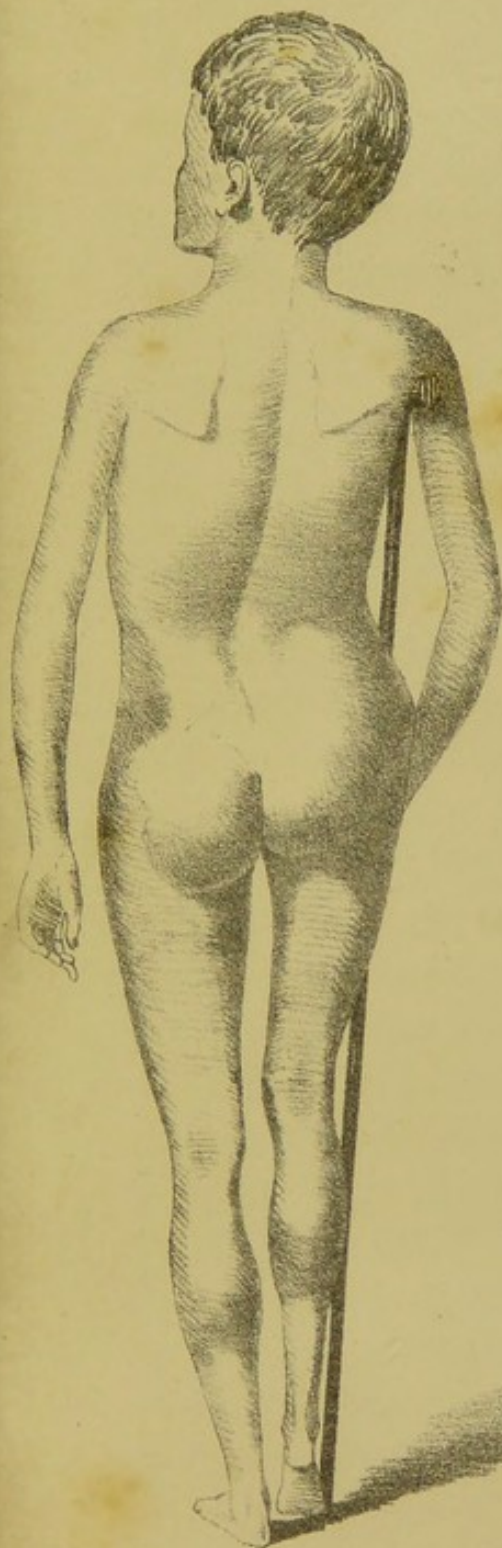
At first I had some difficulty in inducing her to adhere to the plan of treatment I had adopted, from natural irritability of temper; but after a few days' perseverance this obstacle was overcome, and gradual extension was kept up for the space of three months. At the end of the fifth week, the limb was observed gradually to elongate; the ankles were by that time nearly in apposition. Nothing more was done in this case after the hip-shield was applied, but to persevere in maintaining rest in the prone position.

In the following February she was allowed to exercise the limb cautiously. No displacement has subsequently occurred; her health is very good; and the mobility of the joint is almost as perfect as that of the sound side, the only difference I can discover being a slight degree of stiffness, and an inability to flex the thigh as far upwards as she should naturally do. Before her illness she had been under the care of Mr. Tamplin for bow legs, and had worn the long splints used at the Orthopædic Institution. Her gait is therefore very unsightly; but her parents assure me that she walks as well as she did prior to her being attacked with the disease of the hip-joint. She has since been staying several months in the country, and is stouter and more robust than ever.

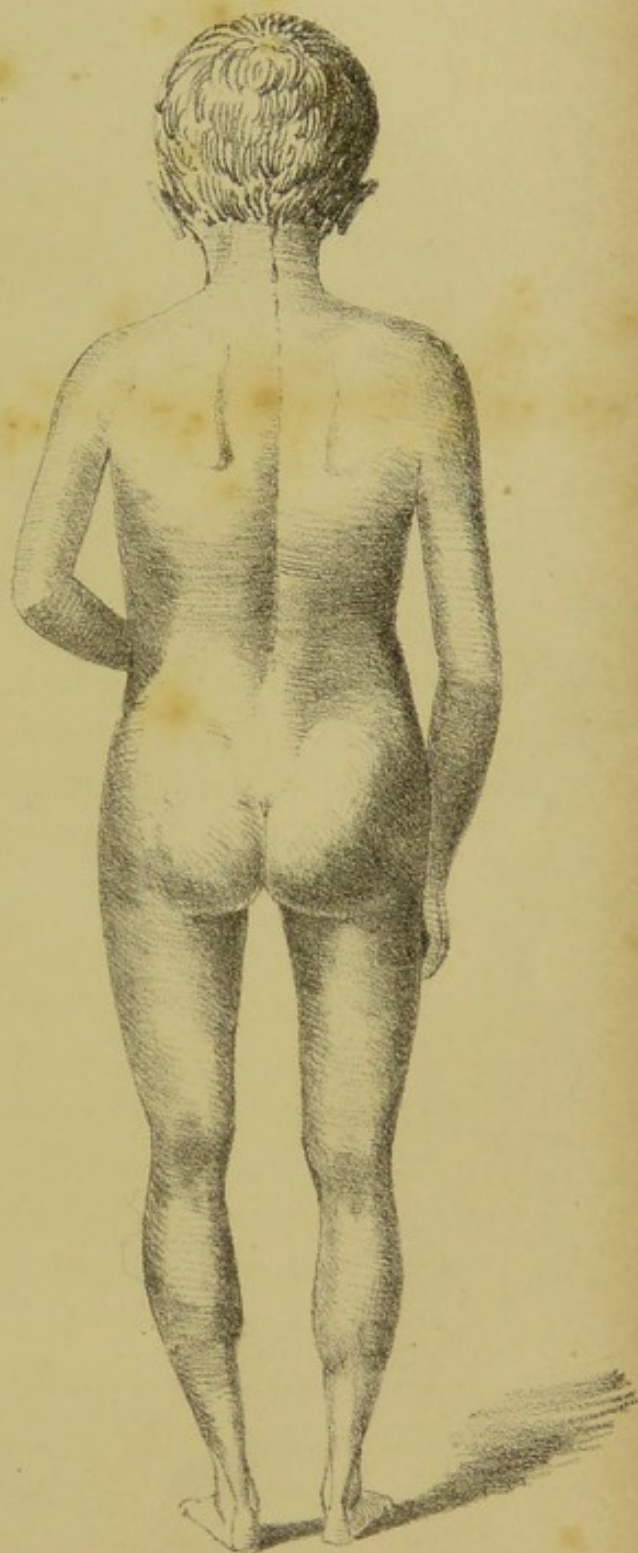
## CASE VII.

Thomas Carter, aged 5 years, living at No. 9, Henry street, Hampstead road, applied for admission as out-patient of the Verral Institution, June 15, 1847. "His general appearance is weakly and emaciated; the muscles of the left thigh and leg are a good deal wasted; the limb is quite two inches and a half shorter than the other,—measured from the anterior superior spine of the ilium to the upper edge of the patella, it shows a shortening of about one inch and a half; it is bent up towards the body, and the knee turned towards the other limb; the foot is slightly everted. The pelvis has assumed an oblique direction, and the spinal column curved in the lumbar region. (See Plate 6, fig. 1.) There is little complaint of pain, except when the limb is moved. He occasionally wakes up in the night and complains of pain in the knee; cannot put his foot to the ground, nor make any attempt at walking; an elastic, deep-seated swelling can be felt around the joint; his general health is much impaired."

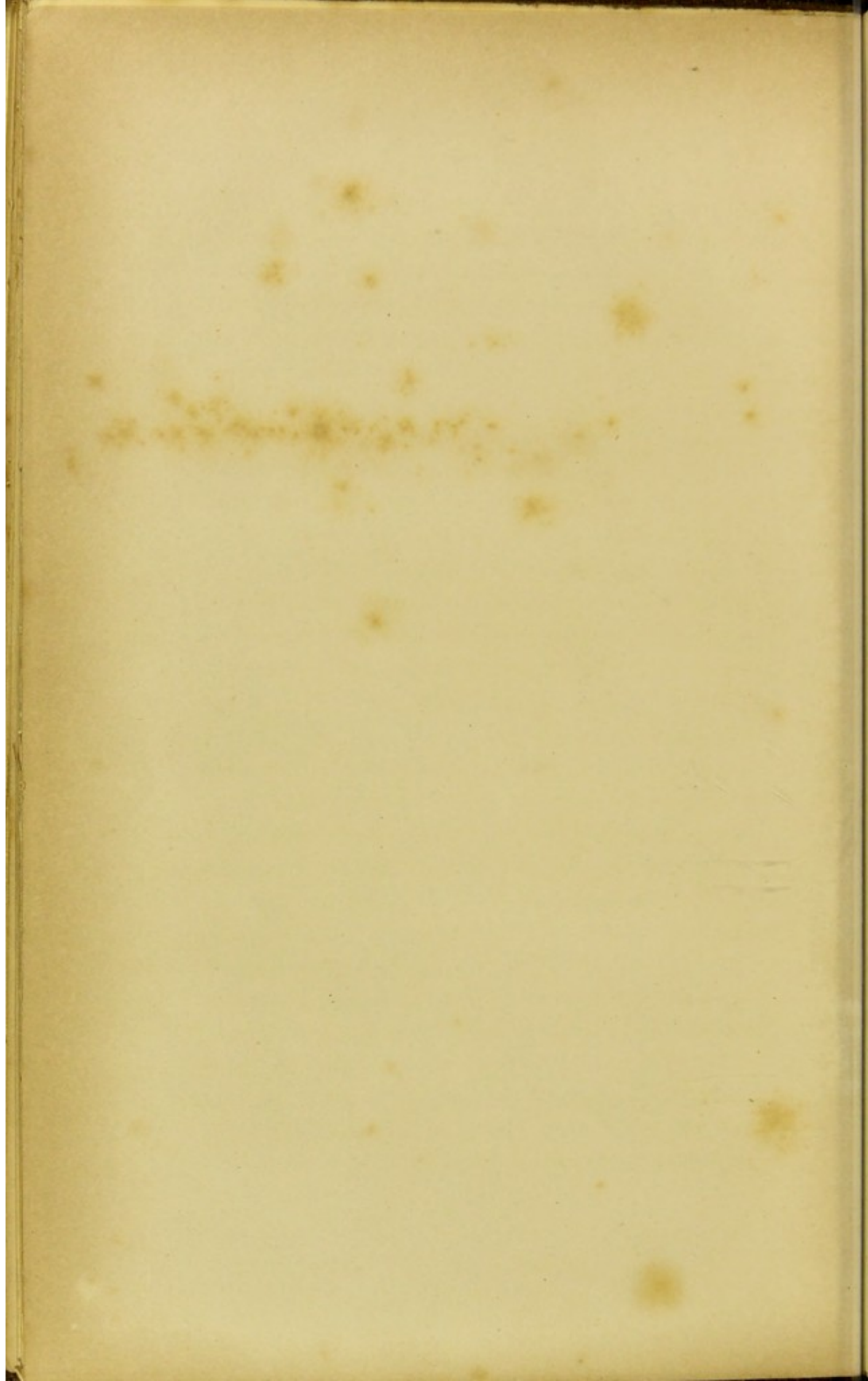
The account given by his mother was as follows: About four months prior to his being brought to the institution, he was taken for a walk to Primrose Hill, and, after having reached the top, he was made to run violently down, held by each hand, and had a severe fall; he was brought home complaining of severe pain in the left limb, from the hip downwards, and walked lame. After a few weeks the pain appeared to settle



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in the knee, which was fomented and poulticed. He became feverish and restless at night, crying out with the pain of his knee, sometimes for hours together: was taken to University College Hospital, and attended as an out-patient. His suffering was very great during this time. Leeches, repeated blisters, and fomentations were applied to the hip, by which means the active inflammatory symptoms were subdued, the pain of the hip and knee abated; and at the expiration of four months he was dismissed, and ordered to walk with crutches as long as any tenderness remained, and then to wear a high-heeled shoe.

This case presented all the unmistakeable characteristics of hip-joint disease in the last stage. I am firmly convinced that the head of the thigh-bone had become dislodged from its articular cavity; indeed his mother was informed to that effect when he was dismissed from the hospital. He was a good deal distorted, owing to the curved state of the spinal column, the oblique position of the pelvis, and contracted position of the affected limb; and although no abscesses had yet made their appearance, the tenderness around the joint, and pain caused by rotation and flexion, indicated that mischief was still going on; and the way in which he lay in bed, resting only on the opposite side, with the affected limb drawn up, and thrown over to that side, had already induced the distortion above mentioned.

I need not here give a detailed account of the treatment employed in this child's case, as the general method

recommended in the chapter on that subject, was carried out as effectually as it could be, bearing in mind that the child resided at home with his mother, who was a widow in very indigent circumstances.

The couch upon which he was placed afforded him so much comfort, that for several months he scarcely ever left it; and I am assured by his mother that, after the first fortnight, he never complained of pain. His countenance became cheerful and healthy, his appetite improved, and the spinal curvature in the lumbar region entirely disappeared. The treatment was continued for about twelve months. During the first three months, repeated blisters were applied over the hip-joint, and the cod-liver oil was administered in doses of one table-spoonful twice a day; great attention was paid to the position of the limb, and extension in this case was accomplished merely by the traction produced by its own weight. By this time, as he lay upon the couch, the limb had lengthened, so that the sole of the left foot was perfectly in a line with the other; in fact, there was not the least difference in the length of the two extremities; the swelling of the hip had entirely subsided. The gutta-percha shield was applied, and he was allowed to walk with a crutch. The foot could now be planted firmly on the ground, although, on account of the loss of muscular power, he was unable to support the weight of the body upon it. After a few weeks, he was able to lay aside his crutch, and for some time I lost sight of him. About the middle of last August, whilst at play with

some other children, he received a violent blow or kick on the lame side, which obliged him to be carried home, and, in a few days, he was brought to the institution for readmission. The same treatment was again pursued; the following month an abscess came forward about the middle of the fore part of the thigh, which, when opened, discharged about a quarter of a pint of not unhealthy looking matter, containing no particles of bone, that I could discover. Subsequently, another opening formed in the back part of the thigh, and another in the groin. Notwithstanding this unfortunate relapse, he suffered infinitely less pain than when first attacked; the limb never retracted, and he can plant his foot firmly on the ground; there is at present a confined state, both of flexion and rotation of the joint, but it admits of a considerable amount of motion; his health is now very good, and he runs about, never complaining of any pain; but, for the present, is made to support the limb with a walking-stick.

## CONCLUSION.

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THE preceding cases are related by way of illustration of the results obtained by the plan of treatment advocated in these pages, accompanied by drawings of the last two cited.

The shortening and contraction of the limb may be considered an almost invariable consequence of this formidable disease, if unchecked in its early stages. The disease itself occurs most frequently amongst the children of the poor, who, after the active symptoms have subsided, are no longer considered fit objects for reception into our public hospitals, on account of the tediousness and uncertainty of their cure. From this cause mainly result the few practical attempts which have been made to relieve the distortion consequent upon its long duration; for, with the exception of one or two institutions expressly for the treatment of the deformed poor (of which the Verral Institution, established in London in the year 1836, was the first), and which have only of late attracted public notice, no adequate aid has been afforded to that suffering portion of the community, who, from needy circumstances, are unable to avail themselves of the surgical treatment necessary for such cases. Many of the class of patients above alluded to, are daily applicants at the Verral

Institution, having been elsewhere informed that their cases admitted of no further relief; of some of these, a permanent cure has been effected, and to a vast many has been afforded a considerable alleviation of suffering.

Not among the least of the recommendations of the mechanical system I advocate is, that, from its simplicity, it obviates all fear of any ill-consequences arising from its adoption; and should it be deemed worthy of a trial by my professional brethren, I trust that it will be attended with the same good results that have been obtained by my own practice.

