

Description of the diseased joints in the Museum of the Army Medical Department at Chatham / by George Gulliver.

Contributors

Gulliver, George, 1804-1882.
Royal College of Surgeons of England

Publication/Creation

Edinburgh : Printed by John Stark, [1837]

Persistent URL

<https://wellcomecollection.org/works/bqhaxf69>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



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

8

DESCRIPTION
OF THE
DISEASED JOINTS

IN THE
MUSEUM OF THE ARMY MEDICAL DEPARTMENT
AT CHATHAM.

C BY GEORGE GULLIVER,
Assistant-Surgeon to the Forces, &c.

(from the *Edinburgh Med. and Surg. Journal*, No. 132.)

who are acquainted with the anatomical museum of the Medical Department are aware that nothing less than a revision of the catalogue would be required to give an adequate account of the collection. But, however desirable such a revision may be, the period of its publication is at present uncertain. The pathological part of the museum has now become of great interest and importance, presenting a body of facts illustrating the diseases of soldiers, unequalled in this country; although the more common affections occupy a space comparatively small; with their frequency, it contains many specimens of rare occurrence, and some which are probably unknown. Details of different sections of the collection will therefore be of great interest to those who are investigating the diseases of the army; and it would venture to hope that a mass of facts thus brought together, and appropriately arranged, may not prove altogether uninteresting to pathological anatomists generally.

Affections of the locomotive organs are first to occupy our attention.

The diseased joints, which form the subject of the present communication, although by no means so numerous as other parts of the collection, will amply repay the trouble of examining them. They may all be referred to one or other of the following heads, namely—

I. Affections of the synovial membrane

II. Affections of the cartilages,—

Hypertrophy.

- B. Atrophy—softening.
- C. Ulceration, principally affecting the synovial surface.
- D. Ulceration, principally affecting the aspect next the bone.

Section III. Affections of the bones.

- A. Eburnation of the surface—modifications of form in the articular extremities.
- B. Caries of the articular surfaces, the bones otherwise sound.
- C. Caries, complicated with partial necrosis, of the articular surfaces.
- D. Caries of the articular extremities, attended with a remarkable disuse of the external surface of the bones.
- E. Caries of the articular extremities, attended with disease of the cancellous structure,—the bones softened, and their earthy part diminished.
- F. Anchylosis.

Section IV. Affections seated principally in the tissues external to the joint.

Section V. Injuries.

In this arrangement I have been guided by anatomical considerations, partly on account of the convenience and simplicity of the method, but chiefly because I have observed that students, while examining the natural structure of a tissue, are often led to inquire with interest concerning the morbid changes to which it may be liable. In the descriptions, I have endeavoured to pursue the plan upon which the arrangement is founded, attending to the structure most obviously implicated, as actually visible in the preparation, rather than to any theory concerning the original seat of the disease, or to those constitutional affections which are usually regarded as favouring its production; subjoining when possible, the history of the case, together with such explanatory remarks as appeared necessary. Thus to a classification having constant reference to the organs or tissues, it will be easy to add the advantage of examining the various elementary forms of disease in the order of their natural relations, or to study those groups of morbid changes which are often comprehended under a single term in the systems of nosology. These remarks are intended also to apply to other divisions of the collection, descriptions of which will shortly follow the present paper.

SECT. I. The specimen of rounded pedunculated bodies hanging from the synovial membrane is probably very rare in the elbow-joint;—the few instances of this curious affection, hitherto recorded, having, I believe, been confined to the knee.

SECT. II.—Here are some interesting examples of *hypertro-*

hy, atrophy, and softening of cartilage. These changes appear to originate in this tissue,—are often long confined exclusively to it,—and are probably altogether independent of inflammatory action. Of the former, I am not aware of any description in the books of pathology. Numbers 71 to 74 inclusive, mark specimens of this affection in the knee-joint, showing the cartilage of the patella hypertrophied, so as to present a transverse ridge extending nearly across the articular surface of the bone. The synovial aspect of the thickened part is considerably elevated, and perfectly smooth, except where its continuity is interrupted by the fissures with which it is sparingly pervaded, splitting the cartilaginous fibres into bundles of irregular size and shape, each packet, however, retaining the natural gloss and consistency of true cartilage. When a section of the thickened portion is examined with a glass of an inch focus, the increase appears to be confined to the homogeneous substance intermediate to the fibres, contrary to what takes place at a more advanced period of the disease, when the former disappears, and the latter, losing entirely their lateral connection, become separate, hang loosely into the joint, and are even enlarged. In No. 68, the hypertrophy is partial, having been succeeded in great measure by the later stage of atrophy and softening.

It is remarkable that all these cases occurred in soldiers who died of pulmonary consumption, none of whom, as far as could be ascertained, had ever complained of their joints. Their extreme ages were 24 and 32. It may be conjectured that the change under consideration is preliminary to some diseases of the articular cartilages which have been frequently observed, namely, their wasting and fibrous degeneration.

Of the atrophy, or absorption of cartilage, so often seen in the joints of old persons, and of the deformity with which it is occasionally connected, an excellent example is afforded by a knee-joint, the different parts of which are numbered, 61, 64, and 65, in this section, and 62 and 63 in the following one. This articulation appears to be closely allied to that described by Dr Hodgkin in the catalogue of the museum at Guy's Hospital, No. 1328. In the joint now before me, while parts of the articular surfaces of the femur and tibia are completely divested of cartilage, that of the patella is simply thinned, and slightly villous on the surface. As the hypertrophy of cartilage, and separation of its substance into irregular masses, was conjectured to precede its softening and fibrous degeneration, so is it probable that the latter condition is preparatory to its complete atrophy. The preparations in the subsection B, show the delicate villous appearance, with slight thinning of the cartilage, at an

early period of the affection ; then still further loss of substance, with the fibres more distinctly separated and developed, as if hypertrophied ; and lastly, the complete wasting which leaves the articular surface of the bone perfectly naked.

Some eminent continental pathologists regard these changes as imperfect reproductions of cartilage, or true cartilaginous cicatrices,—an opinion at variance with the history of the preparations before us, none of which offer evidence of previous inflammation or ulceration ; nor indeed does it appear that any disease was ever suspected in these joints before it was disclosed by examination after death. These affections have often been considered as a consequence of rheumatism, and still more frequently as peculiar to old age ; but I have found the articular cartilages healthy in subjects who had long been afflicted with severe rheumatic disease, and it will be observed that some of the preparations in the collection were taken from a soldier aged only 32. They would appear to afford examples of wasting from defective nutrition, allied probably to certain changes in the cornea which are known to proceed from this cause, and which are also unattended by inflammation or the formation of pus.

The simultaneous occurrence of this change, not only in corresponding joints, but also in the same parts of the cartilages of such joints, is a remarkable fact, which has been forced as it were on my attention, by a somewhat extensive series of observations. However the affection may terminate, such is the frequency in its early stage, of the coincidence alluded to, that when we find the changes described in the present and preceding subsections, on a particular part of the patella or condyles of the femur for instance, the alteration will almost always be found in a corresponding situation of the same cartilage in the opposite joint. The circumstance is curious, and leads to an interesting branch of inquiry ; but it is probably not peculiar to the articular cartilages. Of the molar teeth it may be remarked, that decay is prone to attack them in pairs, either simultaneously or successively.

The preceding remarks are confined to a brief view of the changes exhibited by the preparations. It was my design to have attempted a more extensive and systematic examination of a subject, which appears to me to involve some important considerations concerning the physiology and pathology of the articular cartilages. But this I defer for the present.

Whatever may be the prevalence of malingering among soldiers, when it is considered that many of these changes of structure in the articular cartilages were manifested by no apparent symptoms during life, it appears to be an obvious inference, that we should be slow in entertaining unfavourable suspicions of men who complain of inability to sustain the fatigue

of marching with the heavy burden of a knapsack. It may be observed that the disease, when it occurs in young subjects, generally attacks those of lymphatic temperament, and its diagnosis is not so difficult as might be imagined,—a circumstance which should encourage us to institute a patient inquiry in this class of cases. In the dead body of a man, whose lower limbs were extremely well formed, which I examined a short time since with Dr Stephenson of Rochester, I was enabled to point out that this affection of the cartilages certainly existed in the left knee, and probably to a less extent in the right also,—a prediction which was completely verified by the dissection; and I have at this moment under my care, in the surgical division of the general hospital, a soldier in whose knee the disease is evidently very far advanced. If the joint be briskly moved while its anterior part is grasped by the hand, the palm pressing firmly on the patella, even a slight inequality of the opposing cartilages will become perceptible by a grating, the detection of which is not a little facilitated by the absence of any considerable pain during the procedure. When the alteration of structure is confined to a small part of the cartilage, the grating or crackling may be expected to correspond to a certain degree of flexion or extension of the joint. In the more advanced cases, the sensation communicated to the hand is very remarkable and characteristic, and hardly to be mistaken. It may be worthy of consideration, whether mediate auscultation in these cases might not enable us to ascertain still more accurately the condition of the cartilaginous surfaces. *

SECT. III.—There is a class of cases in which the atrophy of the cartilages and eburnation of the articular surfaces are generally considered as preliminary to very remarkable changes of form, which the extremities of the bones undergo. That all these changes are often complicated is indisputable, but the order of their occurrence does not appear at present to have been accurately determined. In opposition to the general opinion, I have sometimes observed the articular surfaces of the bones much altered in shape, while their incrusting cartilages remained entire, of which No. 31 affords a well marked example in the hip-joint. In No. 26, Dr Davy's analysis shows that the porcelain-like articular surface, contrary to what might be supposed from its stony texture, contains a less proportion of earthy matter than the shaft of the bone,—a fact in accordance with the compara-

* * In the subsection C, the history belonging to Nos. 75—78, is most worthy of notice, as furnishing a well marked instance of scrofulous matter in the femoral vein, in connection with scrofulous abscesses about the knee; a phenomenon, I presume, of rare occurrence. The observations of Arnott, Lee, Rose, and M. Dance, have given great interest to cases in which pus is found in the veins, and the general importance in many diseases, of heterologous products in the blood-vessels, has been still further shown by the researches of M. Andral and Mr Kiernan.

tive composition of the bones of the blood and of the cart-horse a similar excess of animal matter existing in the dense and ivory-like substance of the former. This has been mentioned to me by Dr Davy, as the result of an analysis made many years ago by Dr Granville; and it may be added, that he found the bone of the blood-horse stronger, more compact, and yet lighter than that of the cart-horse. How little dependence is sometimes to be placed on the mere physical characters of a bone, in forming a judgment of its chemical constitution, is still further shown by Dr Davy's analysis of a diseased tibia, the upper part of which, although affording but little resistance to the scalpel, was found to contain an excess of earthy matter.

In the sub-section C it will be seen how frequently ulceration or caries of the articular surfaces is attended by partial necrosis of the exposed cancellous structure. The sub-section E affords some examples of softening of the bones, and diminution of their earthy part, described by Sir Benjamin Brodie as commencing in the cancelli. As a contrast to these, in the sub-section D are several remarkable specimens, in which the periosteal surface of the bones, outside the articulation, has been the seat of extensive disease, the frequency of which arrested my attention while arranging the preparations. By reference to the descriptions it will be seen that it consists in an abundant and irregular deposition of adventitious osseous matter on the superficial part of the bones, extending from the margins of the joint to a considerable distance from it. An affection of such frequent occurrence, and of such well marked character, can hardly be considered merely as an accidental complication. On the contrary, I have seen cases in which this disease preceded, or apparently produced, ulceration of the articular cartilages, instances of which I shall have to notice on a future occasion.

SECT. IV.—In the example of gouty concretion in the hand, although some of the cartilages are incrustated with a very thin layer of this substance, its principal seat is in the cellular tissue external to the periosteum and to the articulations, in the substance of the tendons, in the muscles, and in the fibrous part of the true skin. The sheaths of the tendons appeared to be unaffected, as well as the bursæ, one of the latter having been formed between a joint of the thumb and a mass of the gouty concretion.

SECT. V.—We have so rarely an opportunity of examining by dissection the state of the part concerned in recent dislocations, that the examples of this description of injury in the elbow and hip-joints are well worthy of notice.

The numbers preceding the descriptions are those by which the preparations are known in the museum, which it was thought

better to retain at a slight inconvenience, than to alter them in conformity to the arrangement observed in this paper.

SECT. I.—AFFECTIONS OF THE SYNOVIAL MEMBRANES.

55. Condyles of the femur with part of the capsule of the knee-joint. The synovial membrane is thickened, and much coagulated lymph is deposited on its loose surface. The cartilage is unchanged.

44. Knee-joint, exhibiting adhesions between the articular surfaces of the tibia and femur, and a delicate membraniform layer on the cartilage of the inner condyle of the latter. In the centre of the patella the cartilage is seen to be healthy, and occupying the bottom of a cavity, the sides of which appear to be formed by the synovial membrane thickened and protruded over the circumference of the articular surface of the bone.

From a middle aged female, of whom it is reported that it was considered necessary to remove the limb, but as she objected to the operation, rest and counter-irritants were had recourse to, and she ultimately recovered with a useful limb.

18. Knee-joint, in which the synovial membrane is throughout thickened, and encroaching over the margins of the articular cartilages. A small film of coagulated lymph presents on one part of the articular surface of the femur, but the cartilages appear to be entire.

Removed from a boy, aged 10 years, who had suffered from the disease upwards of eight months.

6. Ankle-joint, in which the synovial membrane is thickened, and a layer of coagulated lymph is deposited on the articular surfaces.

Edward Hanslow, aged 24, 41st Regiment, had been stung on the outer ankle by a venomous insect in India, the bite from which degenerated into an ulcer. On his arrival at Fort Pitt, a year after the injury, great swelling of the foot had taken place, and the slightest motion of the joint caused exquisite pain. The constitutional symptoms being urgent, the limb was amputated, and the man recovered.

3. Elbow-joint, exhibiting an abundant deposit of coagulated lymph on its articular surfaces. The cartilages appear to be entire.

27. Wrist-joint, in which the synovial membrane is generally thickened, and projecting over the margins of the articulation. The cartilages are entire, but partially covered by a delicate membranous exudation, and cellular membranous bands extend, in one situation partially, and in another entirely, across the articular extremity of the radius.

This joint exhibits the commencement of one form of ankylosis.

Removed by operation from D. Morgan, aged 23, 23d Regiment, who had for about six months been affected with swelling of the wrist, accompanied with sinuous alcers in the surrounding soft parts, and hectic fever.

40. Knee-joint, the synovial membrane of which is throughout very thick and pulpy. On a part of the patella the cartilage appears healthy, but the articular surfaces are elsewhere completely invested by a layer, similar to the thickened synovial membrane, from which the morbid growth appears to have extended. The crucial ligaments and semilunar cartilages are also obscured by the diseased mass.

Removed by amputation from C. Macguire, 24th Regiment, aged 25. The disease was stated to have been induced by a fall, and to have been twelve months in progress. When recent, the synovial membrane was described as a brownish pulpy mass; the bones were sound; there were many abscesses around the joint. The disease appears to be an example of that described in the third chapter of Sir B. Brodie's work.

50. Proximal end of the radius, around the neck of which numerous rounded tumours are hanging into the articular capsule, some by fine and others by broader pedicles. These growths are of the colour and consistence of fat, varying in size from an eighth to a third of an inch in diameter; they have a smooth surface, continuous, and apparently identical, with the synovial membrane. The articular cartilage is entire, and presents many filiform processes arising from its surface.

From a man of the 73d Regiment who died of gangrene of the foot. The motions of the joint were impaired during life.

60. A flattened cartilaginous substance, about three quarters of an inch long and a-half broad. Its surface is very smooth, apparently from a covering of synovial membrane, and it is softer in texture than true cartilage.

From the knee-joint of Mr Sullivan, aged 30, 7th Hussars, who had for some time complained of weakness and slight pain in both knees, aggravated during a march. The joints were not altered in appearance, nor were their motions impeded. The left was the most troublesome, and the body shown in the preparation could sometimes be felt on the inferior border of the inner condyle of the femur, but would elude the touch if the joint were not kept extended. The cartilage was fixed and cut down upon in the usual manner, when it was found to be hanging loosely into the cavity of the joint, being connected to the synovial membrane by a broad base, which was divided by a bistoury. About half an ounce of synovia escaped. The wound healed by the first intention, no untoward symptom having occurred after the operation. He was discharged from the service

three months subsequently, with but slight improvement in the joint.

58. Section of a roundish cartilaginous body, about an inch in diameter. Its surface is polished and irregularly nodulated, and its centre presents a portion of osseous matter about the size of a horse-bean.

59. Counterpart to the preceding, dried, showing the form and size of the osseous nucleus.

E. Sullivan, aged 44, 57th Regiment, had long been lame in the left leg, in consequence of an injury to the knee received some years previously. The lameness had latterly increased, the motions of the joint were diminished, and performed with difficulty, and it became painful after exercise. The body shewn in the preparations was situated loosely in the upper part of the joint, presenting frequently on either side of the upper part of the patella, beneath the quadriceps extensor muscle. It was easily fixed on the inner side, and excised in the usual manner. Some inflammation and suppuration took place above the wound, apparently not implicating the joint. The man healed well, and walked with more ease after than before the operation.

43. A subcutaneous bursa enlarged, and its parietes thickened.

SECT. II.—AFFECTIONS OF THE CARTILAGES.

A. *Hypertrophy.*

71. Patella, exhibiting a thickening of the cartilage, extending transversely across the centre of the articular surface. The surface of the swelled cartilage is unchanged, except where its continuity is irregularly interrupted by fissures penetrating deeply into its substance.

James Hennen, aged 31, was admitted with pulmonary consumption, some symptoms of which had affected him for three years. He was delirious three days before he died. On dissection, tubercles and vomicae were found in the lungs; there was softening of the brain in the neighbourhood of the lateral ventricles, and a suppurating tubercular mass in the cerebellum.

72. Patella, exhibiting a transverse fissure ridged on the articular surface, similar to that described in No. 71.

From the same subject as the preceding.

73. Another specimen of the same change in the articular cartilages of the patella as that shewn in 71 and 72.

74. Another specimen similar to the three preceding. In this one, a transverse section of the bone and cartilage has been made, in order to exhibit the extent to which the latter is thickened.

From William Wells, aged 24, 32d Regiment, who died of pulmonary consumption. There was no alteration in the ex-

ternal appearance of the joints, and they contained the usual quantity of synovia, the synovial membrane appearing perfectly healthy.

68. Patella, a part of the cartilage of which is thickened, and another part thinned, softened and villous on the surface.

From the same subject as No. 66.

B. *Atrophy—Softening.*

66. Knee-joint, exhibiting a circumscribed softening and thinning of cartilage on the external condyle of the femur, and on a corresponding point of the patella, nearly exposing the subjacent bones. The bases of the depressions present a villous appearance.

J. Finnan, 1st Royals, aged 32, died at the lunatic asylum, Fort Clarence, of tubercular consumption. Previous to his admission to that establishment he had been three years confined to bed after an attack of remittent fever. During the whole period of his mental disease, he was listless and sullen, in consequence of which he was indisposed to move. The lower limbs became emaciated, and partially paralytic. There was no alteration in the external appearance of the joints; the synovial membrane was healthy, and they contained about the usual quantity of synovia.

67. Condyles of the left femur, presenting a change in the cartilage, similar in character and situation to that described in No. 66, but less advanced.

From the same subject as No. 66.

69. Upper articular extremity of the tibia, the cartilage of which is softened and attenuated; and in one of the lunar depressions, the villous appearance is very distinct.

From the same subject as No. 66.

65. Patella, exhibiting softening and attenuation of its articular cartilage, and a delicate villous or velvety appearance of its free surface.

For an account of the case see No. 61.

64. External semilunar cartilage of the knee-joint, softened, ragged, and approaching in character to cellular tissue.

From the same joint as the preceding (No. 65.)

61. Condyles of the femur, in which there is a deficiency of the greater part of the cartilage of the outer condyle, the exposed bone being slightly smoother than usual, and the margins of the remaining cartilage even and very abrupt. The cartilage is elsewhere of the usual thickness and texture, but numerous delicate filiform processes project from its surface towards the cavity of the joint.

From a man about 78 years of age, whose knee was deformed, being much projected inwards. He walked tolerably well,

and simply attributed the deformity to the gradual effects of hard work. He broke stones on the road up to the period of his admission into the poor-house, with diseased bladder, of which he died. The two preceding preparations, No. 65 and 64, are from the same subject.

70. Articular extremity of the metacarpal bone of the great toe, exhibiting a thinning of the articular cartilage, and a partial separation of it from the subjacent bone.

William Sage, 39th Regiment, aged 50, died of chronic dysentery. He was invalided from India, in consequence of chronic rheumatism and being worn out.

The joint contained the usual quantity of synovia. All the other joints of the extremities were examined and found to be sound.

30. Distal end of the thigh-bone, presenting a small but well marked depression on the cartilage of the inner condyle. The base of the depression is smooth, and formed of a very thin layer of cartilage; its margins are also smooth and rounded.

From a middle aged man who died of dysentery, contracted in the West Indies. After his death, it was observed that the knee-joint was contracted, and could not be extended by ordinary force; but nothing further is known about the case.

The depression, which differs in many respects from the ordinary atrophy of articular cartilages, may probably be regarded as the cicatrix of an ulcer.

C. Ulceration on the Synovial aspect.

13. Hip-joint, in which there is ulceration of the cartilage of the femur, an abundant deposition of lymph around the intra-capsular portion of its neck and in the acetabulum. The latter is nearly filled up, but the head of the femur is not dislocated. The soft parts around the joint are much thickened.

Robert Tallow, 7th Fusileers, aged 23, contracted the disease from exposure to wet and cold. After seven months treatment, he sunk under colliquative diarrhœa. On dissection, slight ulceration of the mucous membrane of the small intestines was found.

12. Elbow-joint, showing ulceration of the cartilages, irregular deposit of coagulated lymph on the ulcerated surface, and thickening of the synovial membrane.

Richard Baker, aged 23, 4th Regiment, had been twelve months affected with the disease, of which he was relieved by amputation of the limb. The case was considered to be of a scrofulous nature.

19. Ankle-joint, exhibiting ulceration of the cartilages, and coagulated lymph on the eroded surfaces.

Removed from a lad, in whom the disease was consequent on injury.

34. Ankle-joint, exhibiting ulceration of the greater part of cartilaginous surfaces, extending to the subjacent bones. The cartilage around the ulcerations appears to have suffered no change; its margins are smooth, and it is firmly adherent to the bone. The exposed part of the latter, between the ulcer on its surface, and the smooth edge of the cartilage, appears to be natural. The posterior part of the capsule presents a layer of coagulated lymph on its synovial aspect. The ulcerated surface of the bones, as well as the adventitious matter on the synovial membrane, is shown by injection to be very vascular.

James Cassidy, 56th Regiment, aged 28, of strumous habit, was several months confined in hospital with pulmonary consumption, of which he died. Some weeks before death, a fistulous ulcer formed in the integuments of the outer ankle, from which issued a copious sanious discharge, sometimes mixed with curdy matter.

51. Ankle-joint, exhibiting ulceration of the cartilages, deposition of coagulated lymph on their surfaces, and on the synovial membrane.

William Massey, 48th Regiment, admitted with an ulcer communicating with the cavity of the joint. The limb was amputated, and the man did well.

21. Ankle and tarsal joints, exhibiting ulceration of the cartilages between the navicular bone and astragalus, and between the cuboid bone and *os calcis*. The cartilages of the ankle-joint are entire, but on that of the astragalus there is a deposition of lymph.

William M'Cardiffe, 39th Regiment, aged 20, was admitted with disease of the right hip-joint, which was relieved by the ordinary treatment. Some months afterwards, the disease shown in the preparation supervened, sinuses formed, accompanied by hectic fever, and the limb was amputated. Soon after the healing of the stump, pulmonary consumption took place and terminated fatally.

1. 192. Ankle and tarsal joints, exhibiting destruction of the cartilages between the astragalus and *os calcis*, and the cuboid bone. A small quantity of coagulated lymph appears on the surfaces of the ankle-joint, but its cartilages are entire. The ulcerated surfaces are generally covered by very vascular coagulated lymph, as shown by the injection, and a portion of the cancelli of the *os calcis* is exposed and apparently necrosed.

From John Ward, aged 31, 98th Regiment, who attributed the disease to a sprain. The limb was amputated, and the man became very healthy afterwards.

1. 151. Section of a foot, exhibiting coagulated lymph between the astragalus and navicular bone, and complete destruction of the cartilages in this situation.

James Croker, 87th regiment, aged 21, had his leg amputated on account of this disease, and afterwards did well.

48. Knee-joint, presenting ulceration of the cartilages extending to the subjacent bone, the cancelli of which are exposed. (On the posterior part of the condyles of the femur, and anteriorly between them, a small extent of the cartilage is entire.

From John Murray, 47th Regiment, aged 44, an old Indian soldier, who attributed the disease to exposure to wet and cold on his homeward passage. The limb was amputated; but he had disease of the liver, and died of general dropsy two months after the operation.

75, 76, 77, 78. Knee-joint, the surfaces of which are throughout invested with coagulated lymph. The cartilages are entirely destroyed, except a small extent on the posterior part of the condyles of the femur. The disease extends into the articulation between the tibia and head of the fibula.

From R. Transom, aged 21, of strumous habit. The disease was of about five months duration. Some time before death, a succession of abscesses appeared about the joint, discharging a thin curdy matter. On dissection, general tubercular disease was found in the lungs, in the omentum and mesentery, and on the surface of the intestines. The femoral vein was thickened and diseased throughout, containing thick bloody matter mixed with puriform fluid. About three inches below the crural arch the vessel was much enlarged, and obstructed by a dense caseous substance, which extended nearly to the termination of the iliac vein.

D. Ulceration on the aspect next the bone.

4. Hip-joint, exhibiting ulceration of the cartilage, destruction of the round ligament, and deposition of coagulated lymph in the acetabulum. On the head of the femur, the ulcerative process has taken place extensively between the bone and the cartilage, the latter retaining its smooth synovial surface, although in great part separated from the former.

Thomas Stevens, 19th Lancers, died after a sojourn of nine weeks in hospital. He attributed the disease to having kicked his foot against an inequality in the ground.

56. Pelvis with the coxo-femoral articulations, exhibiting ulceration of their cartilages, destruction of the round ligaments, and an irregular deposit of coagulated lymph on the inner surface of the synovial membrane. The cartilage is in many places separated from the bone, particularly from the right femur, where the greater part of the cartilage is detached in one continuous layer. The thigh bones are much wasted.

From William Cowan, aged 7, who had suffered from the disease for eighteen months.

32. Hip-joint, presenting ulceration of the entire surface of

the cartilages. Some shreds hanging loosely from the head of the femur, appear to be partly the remains of the cartilage, and partly coagulated lymph. The *ligamentum teres* is softened and shreddy, separated from the thigh-bone, but still retaining connection with the acetabulum. The capsule is much thickened.

John M'Cully, 55th Regiment, aged 22, had been affected with the disease for upwards of three months, when he died exhausted by hectic. The limb was latterly attenuated, apparently shortened, and slightly inverted; and an abscess, which contained turbid scrofulous matter, formed behind the great trochanter. On examination, the acetabulum was found full of brick-coloured grumous fluid, and the ulcerated surface presented the highest vascularity.

20. Elbow-joint, exhibiting caries of the upper end of the ulna, and of the inner condyle of the humerus, a slight film of coagulated lymph on the cartilage of the outer condyle, and thickening of the soft parts around the articulation.

John Bedford, 74th Regiment, aged 18, of a scrofulous habit, admitted with the disease attended with high fever, the affection of the joint having commenced four months previously, in the form of an abscess on the inner condyle. The arm was amputated with a favourable result.

9. Hip-joint, in which the entire surface of the cartilages is ulcerated, and the synovial membrane thickened. The head of the bone is enlarged, and the acetabulum presents a corresponding increase of size. No part of the round ligament, or of its pit in the head of the bone are perceptible.

The disease was attributed by the patient to a fall eight months previous to his admission into hospital.

SECT. III.—AFFECTIONS OF THE BONES.

A. *Eburnation of the surface.*—*Modifications of form in the articular extremities.*

62. A section of the outer condyle of the femur, exhibiting a portion of its articular surface somewhat smoother than usual, and its whole margin slightly expanded by a deposition of new bone.

A small section from No. 61, to show the state of the bone from which the cartilage had disappeared.

63. Upper end of the tibia, the outer articular surface of which is slightly polished, and much depressed, particularly towards its outer margin.

From the same subject as the preceding.

The obliquity and polish described above, corresponding to the deficiency of the cartilage on the outer condyle of the femur, as shown in No. 61, and to the softened semilunar cartilage No. 64.

26. Upper end of the humerus, the head of which is flatten-

11, very hard, and highly polished. Around this ivory-like part there is a deposit of adventitious bony matter.

From Dr Davy's analysis of the shaft, of the adventitious bone, and of the polished ivory-like articular surface, the following results appear, viz.

Composition of the shaft,		
Phosphate of lime, &c.	58.8	
Animal matter,	41.2	
	<hr/>	100.0
Composition of the polished articular surface,		
Phosphate of Lime, &c.	54.2	
Animal matter,	45.8	
	<hr/>	100.0
Composition of the new bone, around the articular surface,		
Phosphate of Lime, &c.	48.8	
Animal matter,	51.2	
	<hr/>	100.0

31. Hip-joint, exhibiting shortening of the neck of the thigh-bone, expansion and flattening of its head, and a corresponding alteration of form in the acetabulum. The cartilage on the head of the bone is of the usual thickness, as is also that of the acetabulum.

A section of the femur has been made, and the counter-part to be found among the diseases of bone, Div. 1. No. 108.

(Case of Fox, described by Mr Gulliver,—Edin. Med. and Surg. Journ. No. 128.

52. Hip-joint, presenting shortening of the neck of the thigh-bone, flattening and expansion of its head, with a corresponding change of form in the acetabulum. The head of the bone is enlarged to a greater degree than the acetabulum, and the latter is very shallow.

(Case of Lynn, described by Mr Gulliver,—Edin. Med. and Surg. Journ. No. 129.

46. Great toe, directed outwards beneath the other toes, at right angle with its metacarpal bone.

From a lunatic pensioner, aged 73.

B. *Caries of the articular surfaces, the bones otherwise sound.*

47. Head of the thigh-bone, the surface of which is throughout carious.

Henry Warrington, Waggon Train, aged 19, had his horse fall on him four months previous to his admission into hospital, and injured the right side of his chest. The hip disease afterwards appeared, suppuration took place in the joint, and the case proved fatal. On dissection, there was much tubercular deposit found in the lungs.

24. Hip-joint, generally carious. The head of the femur is

partly destroyed ; it is displaced downwards and forwards so as to inroad on the thyroid foramen, and the acetabulum is remarkably extended in this direction. Some adventitious bones deposited on the inferior surface of the neck of the femur, near to its junction with the shaft.

1. Hip-joint, in which the ulcerative process has extended from the cartilages deeply into the cancelli of the bones, and completely through the bottom of the acetabulum. The round ligament is destroyed, and the synovial membrane and contiguous soft parts are thickened and consolidated together.

2. Hip-joint, the surfaces of which are throughout carious. Some new bone is deposited on the external surface of the bone, at the posterior and upper part of the acetabulum.

Robert Cooper, 10th Hussars, was twenty months under treatment for the disease. It was caused by a fall from his horse.

1. 179. Hip-joint, throughout carious. A small portion of the bottom of the acetabulum is destroyed, and around the outer part of its margin a considerable quantity of adventitious bone is deposited, which extends in the form of a crust over nearly the whole *fossa ilii*.

From James Law, 92d Regiment, aged 27. The disease was of about twenty months duration. Suppuration was very abundant for some time before death.

1. 181. A section of the head and neck of the thigh-bone, the former carious, and the whole a little more spongy than in the healthy bone.

From the preceding preparation, No. 179.

1. 191. Hip-joint, the surfaces of which are throughout carious, and the greater part of the bottom of the acetabulum deficient. On the outer surface of the ilium and ischium, near to the socket, is a scanty deposit of adventitious bone.

From William Bentley, 9th Regiment, who was reported to have been attacked at sea with acute rheumatism, succeeded by affections of the hip and knee-joint, and pulmonary disease.

42. Knee-joint, the articular surfaces of which are throughout carious.

Removed by amputation, from John Close, 95th regiment. On examining the posterior part of the joint, the popliteal artery was found to pass through one of the sinuses, uninjured.

C. *Caries, complicated with partial Necrosis of the articular surfaces.*

14. Hip-joint, the head of the femur partly destroyed by caries ; and a portion of necrosed bone, about an inch and a half long and three quarters broad, presents at the bottom of the acetabulum. The dead part is nearly detached, and its articular surface is smooth. On the external surface of the bone, poste-

er to the acetabulum, and on the ilium, there is an incrustation of new bone; and, directly above the ischiatic notch, there is a circumscribed deficiency of the adventitious bone, apparently from ulceration, which has extended into the outer side of the old bone.

The patient died of *phthisis pulmonalis*.

441. Knee-joint, exhibiting caries of the whole extent of the articular surfaces, with thickening of the synovial membrane and neighbouring soft parts. A portion of the articular extremity of the tibia is dead and nearly detached, and some necrotic fragments appear to have separated from the posterior part of the condyles of the femur.

From John Healy, a phthisical subject. In the neighbourhood of the knee abscesses formed. He died twelve months after the commencement of the disease.

223. Knee-joint, presenting numerous excavations in the articular extremities. Small parts of the surfaces between the lower condyle of the femur and the tibia have assumed an ivory-like polish.

The excavations are probably the result of exfoliations of dead portions of the epiphysis.

The disease is reported to have been the effect of scrofula.

83. Knee-joint, presenting extensive caries of the articular surfaces. On the external lunar depression of the tibia, a portion of the bone is dead, and nearly detached. There is some deposition of new bone on the outer part of the femur and tibia, and the fibula is ankylosed to the latter.

John Dunn, 53d Regiment, aged 40, admitted with the disease on his arrival from India. The limb was amputated, four months after which he died of disease of the lungs and intestines.

55. Shoulder-joint, exhibiting caries of articular surfaces, extending the cancelli. In the head of the humerus is a cavity containing a portion of the articular extremity of the bone, dead and nearly detached. The scapula is throughout thickened, and its inferior border, and the posterior part of the glenoid cavity, present numerous spiculæ of new bone. On the upper part of the shaft of the humerus is also some adventitious bony matter; and, in one situation, an ulcer with a margin of new bone is seen.

Michael Butt, 8th Hussars, admitted with many large ulcers on the shoulder and side, communicating with the bones and joint of the former. He ascribed the disease to a fall from his horse.

337. Shoulder-joint, exhibiting caries extending deeply into the articular surface of the bones. Some irregular exostoses

The diminution of the earthy matter is shown from the following analysis by Dr Davy of a portion of the tibia, which was found to be composed as follows, viz.

Phospate of lime, &c.	-	-	39.6
Animal matter,	-	-	60.4
			<hr/>
			100.0

F. *Anchylosis.*

53. Section of a knee-joint, the bones of which are completely anchylosed, the capsule obliterated, and dense cellular tissue occupying the interspaces of the articular surfaces.

From E. Marr, whose case is related by Mr Gulliver in the 130th Number of the Edin. Med. and Surg. Journal.

54. Counterpart to the preceding, in which the soft parts have been removed, showing the cancelli of the femur and tibia, and of the former and the patella, completely continuous.

25. Knee-joint, in which there is anchylosis of the patella and tibia to the thigh-bone, and of the fibula to the tibia. A longitudinal section has been made, showing the complete continuity between the cancelli of the tibia and femur.

A church-yard specimen.

22. Hip-joint, in which there is anchylosis between the upper part of the acetabulum, and the remaining part of the head of the femur. The lower half of the acetabulum is empty, and a large deficiency in its bottom communicates with the cavity of the pelvis. The *os innominatum* and the thigh-bone are much wasted.

From a tailor, who, having laboured under the disease many years, died ultimately hectic.

SECTION IV. *Affections seated principally in the tissues outside the joints.*

11. Hand, deformed by large nodosities of gouty tophus around the joints of the fingers, on the palmar aspect of their extremities, and on the back of the metacarpus. The cartilages of the carpus are incrustated with a very thin layer of the concretion, but they present their usual thickness.

11. *a.* Section of a thumb, exhibiting the seat of the gouty matter principally in the cellular substance external to the periosteum and to the articulations, and particularly at the extremity of the member. The masses of the adventitious deposit have no communication with the articular cavities. The cartilages of the latter are of the natural thickness, except in a part of the joint between the metacarpal bone and first phalanx.

From the preceding hand.

11. *b.* Counterpart to the preceding, exhibiting a bursa be-

between a mass of the adventitious deposit and the external part of the articular capsule.

11. c. Piece of a flexor tendon of one of the fingers, with some of the muscular fibres attached to it. In the substance of both some deposits of gouty matter are presented.

From the same subject as the three preceding preparations.

These concretions have been examined by Dr Davy, who found their composition in the dry state as follows:—

Super-lithate soda,	-	-	-	94.5
Phosphate and carbonate lime,	-	-	-	4.5
Animal matter, chiefly cellular tissue,				1.0
				<hr/>
				100.0

From an officer of the 35th Regiment, aged 45, of temperate habits, who had undergone much active service. He was, some years before his death, much affected with gout. Many of the concretions were removed from his hands, and he could write on the table with his fingers. Ulcers also formed on his feet, which usually discharged an ounce of the gouty matter in a fluid state in the twenty-four hours.

V. Injuries.

4. 52. Elbow-joint, exhibiting dislocation of the radius and ulna backwards behind the condyles of the humerus. The coracoid process is lodged in the *fossa olecranal*. The *brachialis anticus* muscle is partly lacerated, and the biceps is much stretched.

Case described by Mr Gulliver in the Medical Gazette, Vol. iii. p. 733.

71. Hip-joint, in which there is a fracture of the posterior part of the rim of the acetabulum, and displacement of the head of the femur on the dorsum of the ilium. The round ligament is ruptured near to its attachment to the pit in the thigh-bone.

A robust young man fell from the castle wall of Edinburgh into Princes Street gardens, from the effects of which it is probable that he instantly died. On dissection, the psoas and iliacus muscles were found on the stretch, the quadratus was entire, the superior fibres of the *obturator externus*, and the posterior part of the *glutæus minimus* lacerated; the superior gemellus completely, and the pyriformis partially torn through, these muscles being carried upwards by the head of the bone; the *obturator internus* was entirely rent asunder; the *gemellus inferior* was perfect. The limb was shortened, semiflexed, and inverted.

Fort Pitt, 2d February 1837.

