

## II.—OPERATIONS ON

No.	Name and Age	Date of Admission, Operation, and Discharge; with Result	Disease
7	Grace S., 15	<i>Ad.</i> , May 6, 1874. <i>Op.</i> , May 14, " <i>Dis.</i> , May 27, " <i>Result</i> , cured.	Ganglion on the back of both wrists beneath the extensor tendons, which had resisted all treatment; multilocular.
8	Agnes —, 17	<i>Ad.</i> , July 1875. <i>Op.</i> , July 13, 1875. <i>Dis.</i> , Oct. 20, " <i>Result</i> , cured.	Ostitis of the tibia; bone much thickened. A sinus was present, leading down to bare bone.
9	Edward R., 59.	<i>Ad.</i> , Aug. 12, 1875. <i>Op.</i> , Aug. 17, " <i>Dis.</i> , Dec. 16, " <i>Result</i> , cured.	Enchondroma of scapula. A tumour had been removed from the same region seven years before the patient's admission to hospital.
10	Alexander—, 26	<i>Ad.</i> , Nov. 10, 1875. <i>Op.</i> , Nov. 16, " <i>Dis.</i> , Dec. 26, " <i>Result</i> , cured.	Four months before admission, patient met with an accident, causing fracture of the ulna a little above its middle, and dislocation of the head of radius backwards. Pronation and supination were almost impossible. Extension could be carried slightly beyond a right angle.
11	James D., 16	<i>Ad.</i> , Feb. 14, 1876. <i>Op.</i> , Feb. 14, " <i>Dis.</i> , Mar. 20, " <i>Result</i> , cured.	Patient was run over immediately before admission. Left ankle much bruised and distended with effused blood.
12	John D., 64.	<i>Ad.</i> , May 18, 1877. <i>Op.</i> , June, 1, " <i>Dis.</i> , Sept. 8, " <i>Result</i> , much improved.	Rupture of rectus femoris and crureus in both thighs, the vasti being still attached to the sides of the patella. No power of extension; though, if the leg were extended, it could be kept so. If it became at all bent, the patient fell.

HEALTHY JOINTS (*continued*).

Treatment	Remarks
Both ganglia were removed, the tendons being exposed during the operation and held aside. On the right side the wrist-joint was opened, the articular surfaces of the scaphoid and radius being seen.	When dismissed to be treated as an out-patient healing was not complete. On June 2, the left wrist was found healed; on June 7, the right had also healed. Left dressed seven times; right eight. Drainage-tubes removed May 20. Typical aseptic course. Movements of fingers and wrist-joints on both sides were perfect. Temperature irregularly taken. Highest temperature was 99.5° F.
Thinking that the case was one of necrosis, Mr. Lister cut down and gouged out a portion of the bone. In doing so, he found the interior of the shaft softened, and converted into a sort of granulation material. In scraping out this matter, the gouge accidentally passed into the ankle-joint, which was healthy. Chloride of zinc was applied, and a drainage-tube inserted.	When the patient was discharged, the wound had completely healed. There was no pain, and the ankle-joint was freely movable. No constitutional or local disturbance followed the operation.
The whole of the scapula below the spine, the spine itself, and about one-third of the glenoid cavity were removed, the upper border of the scapula and part of the glenoid fossa being left.	A portion of one of the flaps lost its vitality, leaving a large deep hole, at the bottom of which the articular end of the humerus could be seen. This took a long time to fill up, but was completely healed when the patient was discharged. The rest of the wound healed by first intention. Passive movement was kept up, and when the patient was dismissed, there was good movement at the shoulder-joint. (See Chart V.)
External lateral ligament of the elbow-joint divided and head of radius snipped off. Drainage-tube inserted into joint. No stitches.	Healing was complete on December 8. Dressed six times; aseptic course. Passive movements were begun on November 18. When discharged, the movements in all directions were very fair. When seen again in September 1877, all the movements were almost absolutely perfect.
Joint incised and clots evacuated.	Aseptic course. On March 10, the wound was quite superficial, and boracic dressing was applied. Movements of joint normal.
The vasti were detached from the sides of the patella. The upper border of the patella was rawed, and the vasti were stitched to it—a V-shaped portion being taken out of the rectus and crureus. Counter-openings made on each side of the joint and drainage-tubes inserted. Only one knee operated on.	Wound went on well for about three weeks, when, owing to the patient pushing his hand under the dressings, the wound putrefied; but by this time the opening into the joint had closed, and no harm resulted. When dismissed, the patient could extend his knee after it had been bent to an angle of 135°; and the other knee being kept extended by means of a splint, he could walk without fear of falling. (See report of case by Dr. Roxburgh in <i>Lancet</i> , 1878.) (See Chart VI.)

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No.	Name and Age	Date of Admission, Operation, and Discharge; with Result	Disease
13	Adam W., 7	<i>Ad.</i> , May 27, 1877. <i>Op.</i> , July 6, " <i>Dis.</i> , Aug. 24, " <i>Result</i> , cured.	Badly united fracture of the lower end of the humerus, the lower part of the upper fragment projecting backwards and locking the olecranon, thus causing inability to extend the forearm beyond an angle of 120°. Of some months' standing.
14	William T., 35 (See No. 5.)	<i>Ad.</i> , July 19, 1877. <i>Op.</i> , July 25, " <i>Dis.</i> , Aug. 11, " <i>Result</i> , cured.	Return of previous symptoms.
15	Francis S., 40	<i>Ad.</i> , Oct. 24, 1877. <i>Op.</i> , Oct. 26, " <i>Dis.</i> , Jan. 11, 1878. <i>Result</i> , cured.	Transverse fracture of the right patella, produced by striking the bent knee against a bar. Patient was admitted on October 12, but insisted on going home, and on being treated by apparatus. As the apparatus did not answer, he now readily consented to the performance of the operation previously proposed.
16	John S., 5	<i>Ad.</i> , Feb. 6, 1878. <i>Op.</i> , Feb. 6, " <i>Dis.</i> , Mar. 29, " <i>Result</i> , cured.	Hæmophilia, with effusion of blood into the right ankle-joint. Stated that he was kicked on the ankle three days before admission. Patient was suffering great pain and constitutional disturbance. The joint was tense from the presence of fluid, and, as Mr. Lister feared that suppuration might ensue, he incised the joint.

HEALTHY JOINTS (*continued*).

Treatment	Remarks
Two longitudinal incisions made on the posterior aspect of the joint: one between the external condyle and the olecranon, the other between the olecranon and the ulnar nerve; these incisions, of course, opening the articulation. The projecting portion of the humerus was then removed, the attachment of the triceps to the olecranon process being left intact, and a hollow was gouged for the reception of the olecranon process. In order to get complete extension, it was necessary to remove the whole of the external condyle; drainage-tubes inserted.	The wounds had quite healed on July 30; dressed six times; typical aseptic course. When discharged, the movements of the elbow-joint were almost absolutely perfect. (See Chart VII.)
Elbow-joint opened; no loose cartilages found, but a number of bodies attached to a fringe of synovial membrane were removed.	Aseptic course. Wound had healed, and the movements were restored when the patient was discharged. (See Chart VIII.)
A longitudinal incision about three inches in length was made over the patella, when it appeared that the fragments were mutually displaced, and a mass of firm coagulum, mixed with fibrous tissue, interposed between them, so that it would have been impossible to bring the osseous surfaces into contact except by operative means. This material was removed, and the ends of the fragments were then refreshed, drilled obliquely and tied together with strong silver wire. An opening was made into the joint on the outer side for the introduction of a horsehair-drain. The wound was closed by stitches, and the limb placed on a posterior Gooch's splint.	The wound had completely healed on November 17, except where the wire was. Drain removed from knee on November 4. Incision on outer side of knee healed on November 11. Dressed seven times; typical aseptic course. Wire was removed on December 21. The splint was left off on January 7. Patella firmly united. There was naturally considerable stiffness of the knee, owing to the limb having lain so long in the splint, but it could be moved with ease through an angle of about 45 deg. Patient would not submit to forcible movement under chloroform, or even to wear an elastic apparatus for gradual flexion. (See Chart IX.)
An incision was made on each side of the ankle-joint. A quantity of dark fluid blood escaped. Horsehair-drain passed through the joint.	Both wounds had healed on March 22. Hæmorrhage occurred from one of the wounds on the morning after the operation, and recurred at intervals during three days, being at length checked by the application of a solution of perchloride of iron in glycerine. Wounds were quite superficial on March 12, and boracic dressing was therefore applied. No suppuration; aseptic course. When discharged, there was no pain in the joint: the joint was quite movable, and the boy was able to run about. Patient was in hospital in September 1879, on account of bleeding from his finger; the ankle was then in every respect quite normal. (See Chart X.)

## II.—OPERATIONS ON

No.	Name and Age	Date of Admission, Operation, and Discharge; with Result	Disease
17	William B., 45.	Ad., March 18, 1879. Op., March 20, " Dis., May 4, " Result, cured.	Ununited fracture of the olecranon of nine weeks' standing. Patient could only imperfectly extend his forearm. The fracture was oblique, and, on flexion, there was considerable separation of the fragments.
18	Edward W., 12	Ad., Jan. 5, 1879. Op., Jan. 15, " Dis., June 12, " Result, in process of cure.	Badly united fracture of the lower end of the humerus, with dislocation of both bones of the forearm backward. Accident happened three months before admission. The movements of the elbow-joint were very limited.
19	James P., 34	Ad., March 19, 1879. Op., March 24, " Dis., April 25, " Result, right cured; left <i>in statu quo</i> .	Loose cartilages in both knee-joints.

HEALTHY JOINTS (*continued*).

Treatment	Remarks
<p>An incision was made on the ulnar side of the posterior surface of the olecranon. Ends of fragments were refreshed with a chisel and hammer, the joint being of course opened. Fragments were then drilled obliquely and tied together with strong silver wire. Horsehair-drain passed into joint. Wound stitched; arm placed on a splint in the extended position.</p>	<p>The wound had entirely healed on April 9, except where the wire was. Typical aseptic course. Drain and stitches were removed on March 27. Passive motion was begun on March 31; wire removed May 11, the union of the fragments being then complete. When discharged, he was able to extend his arm almost completely. In a letter received from him in October 1878, he states that his arm is almost as useful as the other, and that he can carry on his trade as a plasterer, which he could not do before the operation. (See Chart XI.)</p>
<p>On the supposition that the case was simply one of fracture, a longitudinal incision was made behind the joint, with the intention of excising it; but the true nature of the case being revealed, it was determined to avoid interference with the bones of the forearm. A small slice was sawn away from the lower end of the humerus, which was greatly distorted and thickened by callus. The lower end of the humerus was then pared and shaped with chisel and gouge, so as to resemble the natural form of the articular end of the bone, hollows being gouged for the reception of the coronoid and olecranon processes. The dislocation was then reduced; drainage-tubes inserted, and wound stitched. The reason for preferring this operation to complete excision was to avoid the lagging behind in growth of the forearm and hand, which is so apt to occur after that operation in young children.</p>	<p>Aseptic course. Passive motion was begun on the day after the operation. Pronation and supination were perfect from the first, and always continued so. Owing to the movements, a sore remained over the olecranon till April 10, when it had completely healed. The limb was very strong. The movements of extension and flexion were fair, and were constantly improving when the patient was discharged.</p>
<p>Having fixed the cartilage in the right knee, Mr. Lister cut down and removed it. Drainage-tube put into joint. Two days afterwards, a free incision was made into the other joint, in search of a very small loose cartilage, which could not be fixed, but which the patient could generally bring by his own manipulations to the spot incised. Protracted manipulations on his own part, carried out under the spray with carbolised hands, failed however to bring the body to the wound; nor could it be discovered, after a long search, with the finger and hooks.</p>	<p>Both wounds followed an aseptic course. Drainage-tubes removed from each the day after the operation. Right knee healed April 12; left knee had healed before the patient left the hospital. Movements on both sides unimpaired.</p>

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No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result	Disease
20	Andrew G., 28.	<i>Ad.</i> , June 6, 1879. <i>Op.</i> , June 6, " <i>Dis.</i> , July 11, " <i>Result</i> , cured.	Patient was a medical man. He had suffered from bunion, beside the metatarso-phalangeal joint of the great toe of the right foot, for 14 years. Pads, etc., had been used, but without effect. Patient was unable to walk even short distances without great pain, and he could not enter on the practice for which his medical education had now qualified him.
21	William T., 37.	<i>Ad.</i> , Dec. 13, 1879. <i>Op.</i> , Dec. 15, " <i>Dis.</i> , Feb. 15, 1880. <i>Result</i> , cured.	Recent simple transverse fracture of the patella. The accident happened on Dec. 9.
22	James K., 29.	<i>Ad.</i> , April 10, 1880. <i>Op.</i> , April 12, " <i>Dis.</i> , Sep. 25, " <i>Result</i> , stiff knee.	Loose cartilage in the left knee joint.
23	Joseph R., 24.	<i>Ad.</i> , Sep. 27, 1880. <i>Op.</i> , Oct. 22, " (See No. 25).	Ununited fracture of the patella of several months standing. Upper fragment pretty firmly adherent to the anterior surface of the femur. Lower fragment very small. Patient cannot walk at all.

## HEALTHY JOINTS, (continued).

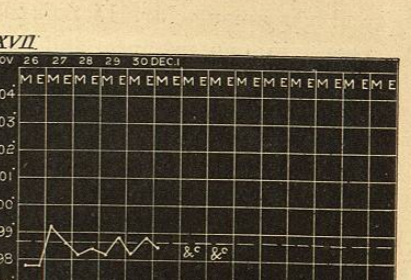
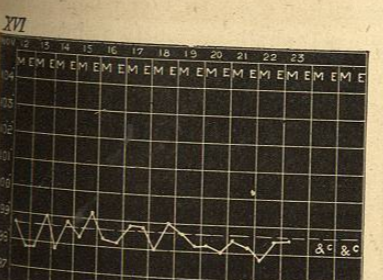
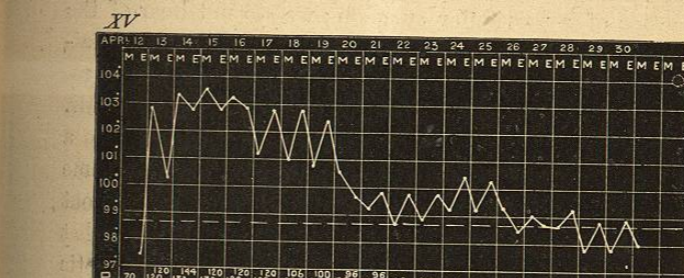
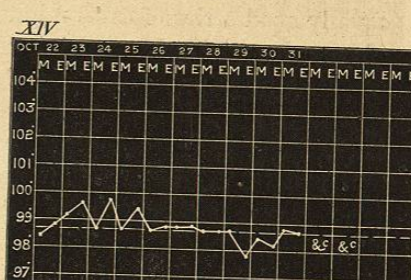
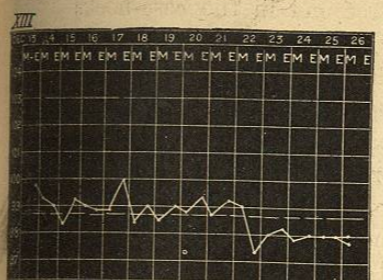
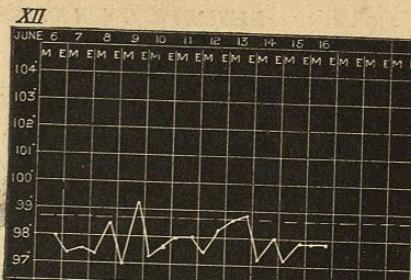
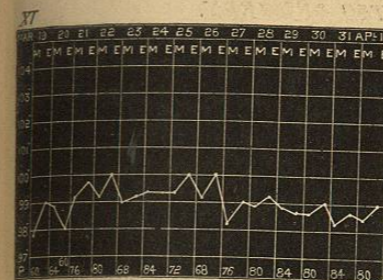
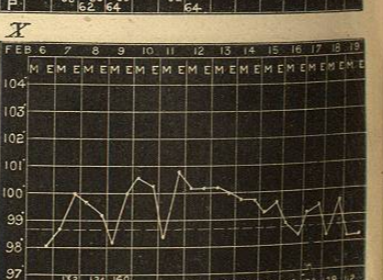
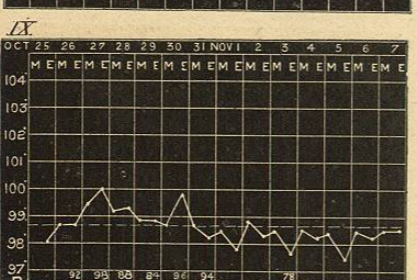
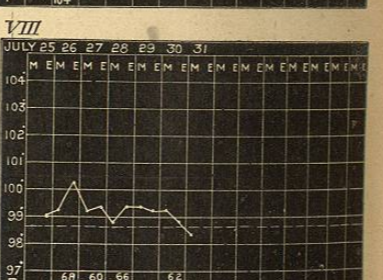
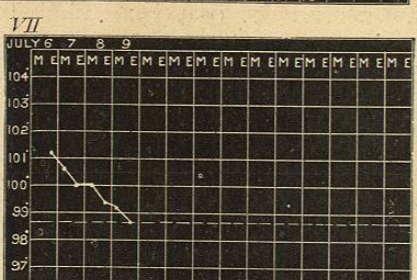
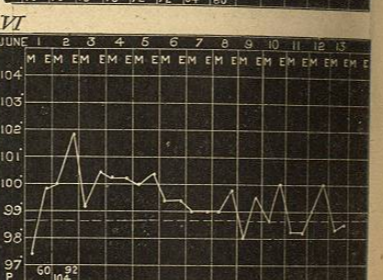
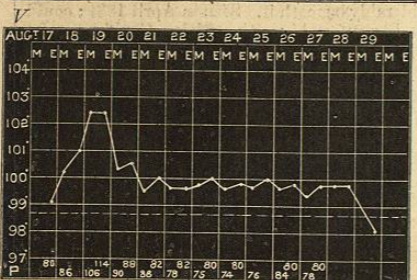
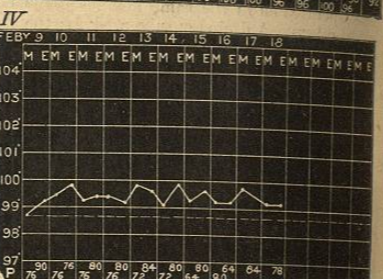
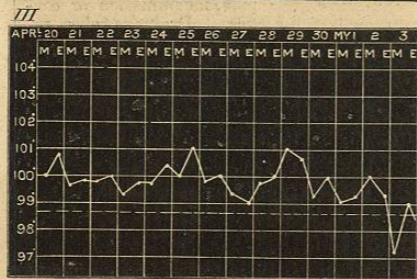
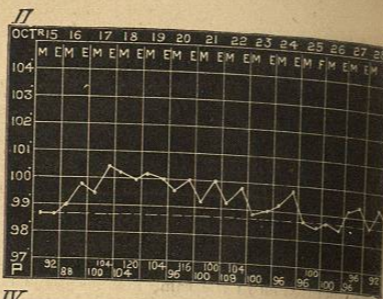
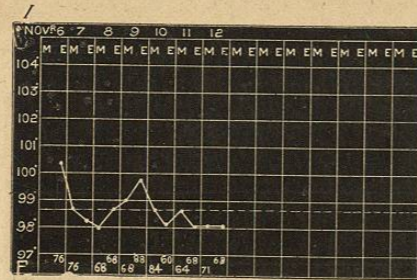
Treatment	Remarks
Mr. Lister made a longitudinal incision over the inner side of the joint on the dorsal aspect. The joint was opened, and the projecting inner end of the extremity of the metatarsal bone cut off. The remainder of the joint left intact. Drainage-tube inserted; no stitches.	Aseptic course. Wound was quite healed on July 9. When discharged, the joint was quite movable and the swelling from thickening of the soft parts much less. In a note received from him on September 16, 1879, patient writes: 'The prominence on the inner side of the foot has entirely disappeared, and I have perfect use of the joint, with entire absence of pain. I can walk ten miles without any inconvenience.' (See Chart XII.)
See description of operation, p. 420.	Typical course. See p. 420. When the patient was discharged the movements of the knee-joint were perfect through an angle of 45°, and were daily improving. Patient could kick vigorously. (See Chart XIII.)
The cartilage was removed by a free incision, and a drainage-tube was inserted into the joint.	On the evening of the day of the operation the knee was very painful, and there was so much discharge that it was necessary to change the small dressing which had been applied at the time of the operation. On the following morning the temperature was up to 102.8° F., the knee was swollen and very painful, and the dressings were saturated with discharge. There was a blush of redness around the wound. The discharge had no smell. This state of matters got worse, the temperature went still higher, and for several days varied between 101° and 103.6°. The discharge from the joint became purulent and an incision was made on the outer side of the patella into the joint. An abscess formed in the thigh, and was opened. During May matters began to improve, and gradually the discharge diminished and the various wounds closed. All had healed on September 25. The knee was almost stiff, but it was possible to get slight movement (fibrous ankylosis). The patient was advised to return in a month to have the adhesions broken down, but he did not do so. (See Chart XV.)
Longitudinal incision over the front of the joint. Upper fragment detached from the femur. Ends of fragments refreshed and tied together with silver wire. Drainage as in the former cases.	Aseptic course. Stitches removed on October 25. The wounds had completely healed on November 4. On November 20 the patient was put under chloroform, and an attempt made to bend the limb. The upper fragment had, however, again become adherent to the femur, and in attempting to bend the limb the wire broke, and the fragments became separated. The case was re-operated on on November 26 (see No. 25). (See Chart XIV.)

## II. OPERATIONS ON

No.	Name and Age	Date of Admission, Operation, and Discharge; with result	Disease
24	Martha F., 43 .	<i>Ad.</i> , Nov. 5, 1880. <i>Op.</i> , Nov. 12, " <i>Result</i> , cured.	Fracture of patella of eight weeks' standing. Patient walks with great difficulty and with the aid of sticks.
25	Joseph R., 24 .	See No. 23. <i>Op.</i> , Nov. 26, 1880. <i>Dis.</i> , Feb. 5, 1881. <i>Result</i> , cured.	See No. 23. Refractured patella.
26	William G., 62.	<i>Ad.</i> , June 21, 1881. <i>Op.</i> , June 24, 1881. <i>Dis.</i> , Aug. 11, 1881. <i>Result</i> , cured.	Recent fracture of patella. Accident happened on June 21.

HEALTHY JOINTS (*continued*).

Operation	Remarks
Operated on in the same manner as the others. A drainage-tube used for the joint instead of a horse-hair drain.	Aseptic course. No pain, inflammation or constitutional disturbance. Drainage-tubes removed November 16. Almost healed on November 22. Quite healed on November 27. Seen on May 31, 1881. Could then walk comfortably without a stick, could raise the leg from the bed and flex the knee, but the flexion could not be carried quite to a right angle. (See Chart XVI.)
Re-operated on as before. No drainage of the joint was necessary. Wound left open in part.	Aseptic course. On December 8 everything had healed except a small part of the gaping incision where blood-clot filled the wound. On scraping away the superficial layer of this clot, cicatrization was found to have advanced considerably beneath it. Seen in April 1881; could walk comfortably with a stick. Could not raise leg from bed, but was able to bring it forward in walking. Flexion gradually improving. Union of fragments good; no separation. (See Chart XVII.)
Treated like No. 21.	Aseptic course. On the morning of the 24th (before the operation) the temperature was 100.2°; in the evening 100.6°. On the 25th T. M. 100°, E. 100°; dressed. 26th, T. M. 100.2° E., 98.6°; dressed. The drain was not acting very well, which probably accounts for the continued elevation of temperature on the 25th; as soon as that was put right the T. fell. On the 27th T. M. 99.4°, E. 100.4°. On the 28th T. M. 99.8, E. 99.6. On the 29th tube left out. Dressed again on July 6. Almost entirely healed and spray stopped on July 9. A minute spot unhealed on July 15. The temperature after the 28th ranged between 98.8° and 99.8°. Passive motion could be readily performed without any pain.



TEMPERATURE CHARTS OF MR. LISTER'S CASES

OF WOUNDS OF, AND OPERATIONS ON, JOINTS.