posterior cornua of grey matter, is the external band of the posterior column; it is also called the posterior root-zone. Sclerosis of the inner division of the posterior column—the column of Goll—does not appear to give rise to the characteristic phenomena of this disease; while it is always present when the posterior root-zones are affected.

Dr. J. Lockhart Clarke has further demonstrated that to the posterior root-zones are principally attached the posterior or sensory roots of the spinal nerves, not to the lateral columns, as was once believed. Usually the posterior cornua of grey matter are to some extent implicated in the sclerosis. The posterior roots of the spinal nerves are almost always found to be atrophied.

Similar alterations from degeneration are found in parts within the cranium, which are closely related to the posterior columns of the cord; as, for example, in the lower cerebral peduncles, the restiform bodies, and the optic thalami. The optic nerve is often affected, and the grey degeneration in it may often be detected very early in the disease by means of the ophthalmoscope.

Chronic neuritis—the result of implication of the cilio-spinal centre, upon which also depends the contraction of the pupil in these cases—is also frequently met with in this as in other spinal diseases.

You must not expect to find the disease always strictly limited to the posterior root-zones and the adjacent grey matter of the spinal cord. Other regions are often invaded in the progress of the disease, and you will then have contractions, paralysis, atrophy, or disease of joints superadded, according to the region involved.

[To be continued.]

PNEUMONIA, WITH COPIOUS HÆMOPTYSIS, TREATED BY ERGOT: SPEEDY RECOVERY.

By C. HANDFIELD JONES, M.B. Cantab., F.R.S.,

Physician to St. Mary's Hospital.

J. D., AGED 21, messenger, was admitted May 19th, 1873. His health had been generally good. His family were healthy; there was no phthisis in his brothers and sisters. He was taken ill on the 16th, about noon, with pains in the chest and back; he had no shivering. He had some dry cough before he was attacked, but did not spit up anything. He had not lost flesh. There was a little trace of herpes at the left corner of the mouth. On the 16th, he brought up by coughing much blood, and had continued to do so till noon; he estimated the quantity at a pint. The cheeks were flushed. Temperature 104°; pulse 96, pausing completely now and then; respiration 47. There was good resonance in both fronts. The breath-sound was harsh and rather weak under the left clavicle; in the third space it was normal. Below the right clavicle the breathing was also weak and harsh, and attended with prolonged expiration. Good resonance and breathing were heard in all the right back and in the upper third of the left; in the lower half, or rather more to the left, there were marked dullness, bronchial breathing, and bronchophony. He had had pain in the left side; not much now. He lay down flat. He slept very badly last night. He was ordered to have a turpentine fomentation applied to the whole back, and to take a drachm of fluid extract of ergot and an ounce of *mistura ammoniac acetatis* four times a day, and to have simple diet, with milk. On the 20th, he had had a better night; the bronchial breathing and crepitations were heard higher up in the left back than on the 19th. The sputa were mucous, mixed with red blood. Beef-tea and two eggs were added to the diet. He was ordered to have five grains of mercury and colocynt pill at bed-time. On the 21st, the sputa were still much blood-stained. On the 22nd, the left lower back was decidedly more resonant; bronchial breathing had ceased; some vesicular respiration was heard. The sputa were less, almost quite free from blood; his appetite was better. 24th. There were scarcely any sputa; what there was was only clear mucus. He was eating boiled sole. There was fairly good breathing in the lower left back. The ergot was omitted, and he was ordered to take twenty minims of liquor ferri muriatis and fifteen minims of spirit of chloric ether, in an ounce of water, three times a day. On the 29th, breathing under both clavicles was somewhat weak and harsh; he had no expectoration; and he was walking about apparently well.

Date.	Temp.	Resp.	Pulse.
May 19	104	47	96
May 20	102.9	48	102, arrested by 174 grammes.
May 21	100.7	33	86
May 22	98.6	44	78, arrested by 174 grammes.
May 23	97.8	—	—
May 24	97.8	34	66, arrested by 150 grammes.
May 27	—	—	—, arrested by 200 grammes.

The duration of the disease, from commencement to defervescence, was six days; to nearly complete resorption of exudation, eight days.

The hæmoptysis was unusually profuse, and naturally suggested the remedy.

The foregoing history was recalled to my recollection by perusing the case recorded in the JOURNAL of November 15th (page 772), of "rapid cure" of pleuropneumonia by ergot. In both, the action of ergot seems to have been beneficial; but I demur to the assumption that it effected a cure. Nothing seems to me more certain than that ordinary pneumonia (*pneumonie franche*), at any rate as we see it now-a-days in London, runs a determinate course; the inflammatory process terminating, by more or less rapid defervescence, about the sixth or seventh day from the initial rigor; while the exudation undergoes resorption sooner or later, according to the energy of the vital powers. If this be so, it is clear that we must be very careful not to deceive ourselves by attributing to our remedies what is really due to the natural course of the disease. Further, we must take good heed not to employ any means which injuriously affect the patient's strength, and especially we must be cautious of doing anything which may enfeeble the heart. Jurgensen emphasises this caution strongly (*German Clinical Lectures*, New Sydenham Society, 1876), and I quite agree with him, though I do not think his heroic measures are often requisite. Though we cannot cure the disease, we may, however, materially mitigate its severity, and sometimes no doubt save life. Ergot and liquor ferri perchloridi may check and control the inflammation; opium may allay pain, and calm and steady the nervous system; bark and ammonia, with wine, may give tone to the failing heart, especially in the collapse of the crisis; effervescing salines, or brandy and soda-water, with or without a dose or two of calomel, may quiet gastric irritation, and enable the patient to take food better; quinine in large doses, or the cold bath, may serve our need in dangerous hyperpyrexia. There is plenty of scope for beneficent and well-directed action; but, as we have only to gain time to win, no risk should be incurred with the idea of cutting short the disease. Such, at least, is my experience in London. It would be very interesting to know whether that of other practitioners elsewhere is different. Hjaltelin's in Iceland certainly seems to have been so; but Dr. Hughes Bennett's at Edinburgh, and Jurgensen's at Kiel, is essentially similar. With regard to ergot, I may mention that, though I have tried it in various inflammatory affections, notably in bronchitis, it has on the whole disappointed my expectations. Theoretically, it ought to be a great remedy for inflammation; but practically, it has not often accomplished much.

STATISTICAL REPORT OF ALL OPERATIONS PERFORMED ON HEALTHY JOINTS

IN HOSPITAL PRACTICE, BY MR. LISTER, FROM SEPTEMBER 1871 TO THE PRESENT TIME, TOGETHER WITH SUCH ACCIDENTAL WOUNDS OF JOINTS AS OCCURRED DURING THE SAME PERIOD.

By W. WATSON CHEYNE, F.R.C.S.,

Surgical Registrar, King's College Hospital.

A DESIRE has been frequently expressed that a statistical account of some of the results of the antiseptic method of treatment in Mr. Lister's own hands should be published; and with the view of satisfying this reasonable wish the following cases are brought forward.

In comparing the results of one method of treatment with those of another, it is not sufficient to state these results merely numerically; some idea of the nature of the individual cases must be given; but to publish all those which have occurred in Mr. Lister's practice since the commencement of antiseptic treatment in sufficient detail to convey a correct impression of their nature would be a very laborious work; and further, such a paper would contain many cases of little interest, which, however, could not be omitted without laying oneself open to the charge of withholding part of the results. I have, therefore, with Mr. Lister's permission, selected a series of cases which must be looked on as crucial tests of the treatment, viz., those where healthy joints have been opened by incision or through accident and kept open for some days.

This paper will accordingly contain an account of all such cases which have occurred in Mr. Lister's hospital practice since September 1871 up to the present time. I begin at 1871, partly because the note-books conveniently accessible to me commence at that date, and partly because the treatment has been carried out in its present form only since that time, the spray and gauze being substituted during that year for syringes and lac-plaster.*

* See the BRITISH MEDICAL JOURNAL for January 14th, 1871, where the first mention is made of the use of the gauze and spray, and where a very instructive case of incision into the elbow-joint to remove the head of the radius which was dislocated forwards is given. (Compare with this case No. 10.)

It may not be amiss to recall here the chief features of the treatment, the results of which are under consideration. The theories, I might almost say natural laws, on which it is founded are: that putrefaction or other fermentative changes occurring in a wound are the chief sources of danger to a patient after operation, the degree of danger varying with the situation and nature of the wound, the constitutional condition of the patient, and the character of the ferments present; that the cause of fermentative changes in organic liquids is the growth of organisms (generally bacteria) in them; that these organisms are never developed *de novo*, but always from a parent; that they gain access to a wound only from the air and the surrounding objects;* and that it is possible, by a proper use of various chemical substances, to destroy the vitality of these organisms before they reach the wound. The great aim of the operator or dresser is, therefore, so to manipulate as to prevent the access of living organisms to a wound. Those in the air are destroyed by having a spray containing some sufficiently powerful antiseptic playing around the wound; those on the instruments, sponges, skin of patient or operator, etc., are destroyed by washing these with a strong antiseptic lotion. The operator performs the necessary manipulations in the antiseptic atmosphere, merely taking care that nothing impure comes in contact with the wound, and also that, should his fingers or any instrument be removed from this atmosphere, they are repurified before reinsertion into the wound. At the conclusion of the operation, an antiseptic dressing of suitable material and dimensions is so arranged that causes of putrefaction shall not gain access to the wound during the time which elapses till the dressings are changed, and at each change of the dressings the same care is taken as during the operation.

It will thus be apparent that the cases here recorded are examples of the results of the practical carrying out of a principle, and not of the application of any particular medicament in any special form to the tissues. The use of the spray is not more important as an antiseptic means than the purification of instruments, etc., in the antiseptic lotion. The spray merely purifies the atmosphere; and, as there are undoubtedly fewer organisms floating about in the air than are present on any instrument which has got dust or water on it, if one were compelled from any cause to give up one or other antiseptic means, one would at once choose the spray as the least important and that which could be the most easily dispensed with. In fact, the antiseptic treatment was carried on for years by Mr. Lister without any spray; the wounds being washed out with carbolic lotion and carbolic putty, lac plaster, or other dressing acting on similar principles immediately applied.

Hence, to say that, because a surgeon uses the spray, or, indeed, all the materials for antiseptic work, he therefore employs the antiseptic treatment, is incorrect, unless the various means are used with the definite aim of excluding the putrefactive ferments. On the other hand, to say that, because a surgeon does not use a spray or even carbolic acid, he therefore does not employ the antiseptic method, would be equally incorrect. So long as the result of his treatment is to exclude or render inert the causes of putrefaction, he has been practising antiseptic treatment.

Besides the avoidance of putrefaction an essential element in the treatment is to provide free drainage for blood and serum, and so avoid inflammatory disturbance from tension.

It will prevent repetition if I give here a case in full as a type of the course usually followed under antiseptic treatment by incised wounds in healthy tissues. Cases behaving similarly will be referred to in the sequel as having run an "aseptic course".

John D., aged 43, was admitted into the Edinburgh Royal Infirmary on February 12th, 1874, suffering from exostosis growing from the external condyle of the right femur. The patient stated that for the last thirty years a swelling had existed on the outer side of the lower end of the right femur. This had increased very slowly, but of late it had interfered with the movements of the knee-joint. There was a small tumour about the size of an orange, quite hard, situated on the outer side of the right knee, apparently growing from the external condyle of the femur. The patient complained of great pain in walking.

Operation.—February 12th. A longitudinal incision about three inches in length was made on the outer side of the knee over the tumour. Some synovial fluid escaped, probably from a wound in the capsule of the knee-joint. The tumour was found to be pedunculated, and the pedicle was cut across by bone-forceps. (The rough ridge corresponding to the base of the tumour extended to a point three-quarters of an inch below the level of the upper border of the patella, the limb

being extended.) Two drainage-tubes were inserted, and the rest of the wound was stitched up.

February 13th. Morning temperature 99.2 deg.; pulse 70. The patient had not slept well, in consequence of chloroform-sickness. He had taken a good breakfast. There was almost no pain in the wound. The dressing was changed, and found to be soaked with a sero-sanguineous fluid. One drainage-tube was removed.

February 14th. Morning temperature 99 deg.; pulse 76. The patient felt quite well. As no discharge appeared outside the dressing at the usual time of visit, the dressing was not changed.

February 15th. Only the superficial dressing was changed to-day. There was only a very slight serous stain on it. There was no redness nor pain on pressure round the wound.

February 19th. The patient had not been dressed since last date. The whole dressing was changed to-day. One stitch and the remaining tube were removed.

February 26th. The patient was dressed. There was only a slight serous stain on the dressing; no pus. All the remaining stitches were removed. Cicatrisation was complete, except where the drainage-tube was, and there blood-clot filled the channel.

March 5th. Healing was complete everywhere, except a minute point where the drainage-tube had been. There had never been any pus or granulations.

March 12th. The wound was quite healed. The knee-joint movable.

March 25th. The patient was dismissed cured.

Here we observe that there was no local or constitutional disturbance after the operation; and such is the typical aseptic course. It is unfortunate that in this case, which I have selected as being one where the knee-joint was probably opened, a complete record of the temperature has not been kept. I may, however, state, from careful examination of many temperature-charts of cases treated antiseptically, that the following is their usual course. On the evening after the operation, the temperature is generally slightly below the normal, especially if the operation have been a severe one. Next morning, it is normal, or slightly elevated (one or two tenths of a degree). On the following evening, it is generally at its greatest height, being rarely higher than 100 deg. Fahr. It then rapidly falls, and is again normal twenty-four hours later. It never rises again, unless putrefaction occurs, or unless other causes of elevation of temperature, such as tension, come into play.

After the effects of the chloroform have passed off, the patient who has been operated on antiseptically has the aspect of perfect health, no impairment of appetite or other symptom of fever being present.

As regards the local effects, there is no pain, no inflammation, no suppuration; the discharge, which is serous in quality, rapidly diminishes in amount, and hence the dressing requires to be but seldom changed. If a joint be opened, there is no impairment of its mobility.

Any deviation from the typical aseptic course will be noted in the report of the cases.

In cases where the joint has been opened by accident, the state of matters is, of course, very different from that where the incision has been made under antiseptic precautions. In the accidental wounds, dirt or air with its dust have entered the joint before the surgeon sees the case; and the problem then is not only to prevent the entrance of causes of putrefaction, but also to destroy the vitality of those which have already gained admission. This is done by the injection into the wound and joint of a strong antiseptic lotion, care being taken that the fluid enters all the recesses of the wound, while at the same time any such distension as would force the fluid into the cellular tissue is avoided. The lotion used is, in cases seen an hour or two after the accident, 1-20 carbolic solution, and where several hours have elapsed, a solution of carbolic acid in rectified spirit 1 in 5.

The method of procedure is as follows. The surrounding skin having been washed with 1-20 carbolic lotion, and the external wound having been enlarged if necessary, the end of a gum-elastic catheter, connected with a syringe containing the lotion, is introduced into all the recesses of the wound, and the fluid is thus applied to all parts, the large opening allowing its free exit. Any coagula found in the wound are at the same time sponged away. Suitable drainage is then provided for, and an antiseptic dressing applied, the whole operation being done in a cloud of carbolic spray.

Here, of course, success is no longer a matter of certainty. It may be that the wound is a very complex one, and that some of its recesses may not have been reached by the lotion. When, however, success is attained, the case follows a course similar to that just described.

In accordance with this difference in the conditions, I have arranged the cases in two groups, according as the incision into the joint was made by the surgeon or was the result of accident.

* In some rare instances organisms have been found in the pus of previously unopened abscesses. This has been notably the case in acute necrosis. These exceptions are, however, so rare, as to justify the general statement in the text. (See a paper by myself "On the Relation of Organisms to Antiseptic Dressings", in the *Pathological Transactions* for 1879.)

TABLE A.—OPERATIONS ON JOINTS.

No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result.	Disease.	Treatment.	Remarks.
1	John C., 46.	<i>Ad.</i> , April 5, 1872. <i>Op.</i> , April 6, " <i>Dis.</i> , May 9, " <i>Result</i> , cured.	Caries of metacarpal bone and first phalanx of ring-finger.	Removal of the finger and the whole of the metacarpal bone; the articulations being of course opened.	On April 23rd, the wound had entirely healed, except a small point at the distal end. Aseptic course.
2	David B., 39.	<i>Ad.</i> , July 22, 1872. <i>Op.</i> , July 22, " <i>Dis.</i> , Aug 5, " <i>Result</i> , cured.	Loose cartilage in knee-joint.	Free incision into joint; cartilage removed.	Wound was completely healed on August 5th. It had been dressed four times. Aseptic course. Knee freely movable.
3	John McL., 34.	<i>Ad.</i> , March 13, 1873. <i>Op.</i> , March 28, " <i>Dis.</i> , June 6, " <i>Result</i> , cured.	Ununited fracture of olecranon; fracture oblique; considerable separation of fragments. Patient unable to extend the arm. Accident occurred five months previously.	Incision over olecranon, the cartilaginous end of the humerus being at once freely exposed. Ends of fragments refreshed, drilled, and tied together by strong silver wire. Wound left open. Splint applied so as to keep the arm extended.	The wound had completely healed on May 2nd, except where the wire projected. Dressed ten times. Wire removed on May 19th, when union was complete. Passive motion was commenced on April 8th, and was performed at each dressing. Typical aseptic course. When dismissed, the movements of the arm were almost perfect. In a letter received from the patient some time afterwards, he stated that the one arm was as good as the other.
4	John H., 19.	<i>Ad.</i> , May 6, 1873. <i>Op.</i> , May 31, " <i>Dis.</i> , Aug. 15, " <i>Result</i> , cured.	Dislocation of the lower end of the ulna backwards. The lower end of the radius was much thickened. Suppuration had occurred in the sheaths of the tendons. The movements of the wrist-joint were painless, but limited, more especially as regards extension.	Abscesses opened; end of ulna removed; drainage-tube introduced into the wrist-joint, which was healthy.	No local or constitutional disturbance followed the operation. When sent to the convalescent home on August 15th, there was still a small sinus, but this soon healed. The movements of the wrist-joint were greatly improved.
5	William T., 31.	<i>Ad.</i> , Nov. 19, 1873. <i>Op.</i> , Nov. 26, " <i>Dis.</i> , Jan. 8, 1874. <i>Result</i> , cured.	Loose cartilages in the elbow-joint. The movements of flexion and extension were impaired, more especially the former. Pain on attempting to complete these movements.	Longitudinal incision over external condyle. Joint opened; loose bodies (about 200 in number) scooped out. two drainage-tubes were inserted; wound stitched.	Healed on December 17th. Dressed seven times. Aseptic course. Arm was paralysed at first, owing to the pressure of the tourniquet; but, under the use of galvanism, this was cured. When dismissed, the movements were much improved. (See paper by Mr. Sampson Gamgee in <i>Lancet</i> for January 10th, 1874.)
6	Frances G., 54.	<i>Ad.</i> , Nov. 3, 1873. <i>Op.</i> , Feb. 8, 1874. <i>Dis.</i> , Sep. 14, " <i>Result</i> , improved.	Ununited fracture of neck of right femur. Accident happened 18 months ago. Right limb, 29½ in.; left limb, 31½ in. Suffered great pain; could neither sit nor walk.	The limb having been drawn down to full length by pulleys, an incision was made over and above the trochanter, and the ends of the fragments were refreshed with the gouge and hammer, the joint being opened in the process. Drainage-tubes inserted into joint; no stitches; long splint and extension with weight and pulley applied. Length of right leg after operation, 30½ in.	Healed on March 28th; aseptic course. Extension was maintained till April 3rd; and when it was at length removed, it was discovered that the weight had been too heavy, and that the limb operated on was longer than the other. When the patient left the hospital, there was not osseous union, but she was able to walk fairly and to sit, and the pain which she previously suffered had completely disappeared.
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.	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 exposed.	When dismissed to be treated as an out-patient, healing was not complete. On June 2nd, the left wrist was found healed; on June 7th, the right had also healed. Left dressed seven times; right eight. Drainage-tubes removed May 20th. Typical aseptic course. Movements of fingers and wrist-joints on both sides were perfect.
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.	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 the 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.
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.	The whole of the scapula below the spine, the spine itself, and about one-third of the glenoid cavity was 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.
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.	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 8th. Dressed six times; aseptic course. Passive movements were begun on November 18th. When discharged, the movements in all directions were very fair. When seen again on September 1877, all the movements were almost absolutely perfect.
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.	Joint incised and clots evacuated.	Aseptic course. On March 10th, the wound was quite superficial, and boracic dressing was applied. Movements of joint normal.
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.	Vasti detached from the sides of the patella. Upper border of patella was rawed, and the vasti were stitched to it—a V-shaped portion being taken out of the rectus and crureus. Counter-opening made at the sides 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 deg., 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.)

[Table of Operations on Joints continued.]

No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result.	Disease.	Treatment.	Remarks.
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 deg.	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 removed through the incision, 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 30th; dressed six times; typical aseptic course. When discharged, the movements of the elbow-joint were almost absolutely perfect.
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.	Elbow-joint opened; no loose bodies 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.
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 12th, 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.	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 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 17th, except where the wire was. Drain removed from knee on November 4th. Incision into side of knee healed November 11th. Dressed seven times; typical aseptic course. Wire was removed on December 21st. The splint was left off on January 7th. 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.
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.	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 22nd. Hæmorrhage occurred from one of the wounds on the morning after the operation, and recurred at intervals for three days, being at length checked by the application of a solution of perchloride of iron in glycerine. Wounds were quite superficial on March 12th, 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.
17	William B., 45.	<i>Ad.</i> , March 18, 1879. <i>Op.</i> , March 20, " <i>Dis.</i> , May 4, " <i>Result</i> , cured.	Ununited fracture of the olecranon of nine weeks' standing. Patient could not extend his forearm. The fracture was oblique; and, on flexion, there was considerable separation of the fragments.	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.	The wound had entirely healed on April 9th, except where the wire was. Typical aseptic course. Drain and stitches were removed on March 27th. Passive motion was begun on March 31st; wire removed May 11th, 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 this 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.
18	Edward W., 12.	<i>Ad.</i> , Jan. 5, 1879. <i>Op.</i> , Jan. 15, " <i>Dis.</i> , June 12, " <i>Result</i> , 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.	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 coracoid 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.	Aseptic course. Passive motion began 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 on the olecranon till April 10th, 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.

[Table of Operations on Joints continued.]

No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result.	Disease.	Treatment.	Remarks.
19	James P., 34.	<i>Ad.</i> , March 19, 1879. <i>Op.</i> , March 24, " <i>Dis.</i> , April 25, " <i>Result</i> , right cured; left <i>in statu quo</i> .	Loose cartilages in both knee-joints.	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 carbolic hands, failed however to bring the body to the wound; nor could it be discovered, after a long search, with the finger and hooks.	Both wounds followed an aseptic course. Drainage-tubes removed from each the day after the operation. Right knee healed April 12th; left knee had healed before the patient left the hospital. Movements on both sides unimpaired.
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 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.	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 9th. When discharged, the joint was quite movable; the swelling from thickening of the soft part much less. In a note received from him on September 16th, 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."

TABLE B.—WOUNDS OF JOINTS.

No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result.	Disease.	Treatment.	Remarks.
21	Frank K., 29.	<i>Ad.</i> , Nov. 20, 1871. <i>Op.</i> , Nov. 20, " <i>Dis.</i> , Dec. 23, " <i>Result</i> , cured.	Little finger-joint fractured in various places. Skin over hand contused. Fourth metacarpal bone laid bare in the greater part of its extent. Fourth metacarpo-phalangeal joint opened.	Little finger amputated; other parts well syringed with 1-20 carbolic lotion.	Some sloughing and suppuration occurred among the contused parts in the hand, and an abscess formed in the forearm. Entirely healed December 23rd. Passive movements were begun in December, and could be easily performed.
22	George G., 60.	<i>Ad.</i> , June 28, 1872. <i>Op.</i> , June 28, " <i>Dis.</i> , Oct. 1, " <i>Result</i> , cured.	Compound comminuted fracture of the humerus, caused by the wheel of a wagon passing over his arm. Humerus fractured in two places; the lower fracture communicating with the elbow-joint. Patient admitted about two hours and a half after the accident.	Wound injected with 1-20 carbolic lotion. Some loose pieces of bone were removed from the lower wound.	Putrefaction was avoided; typical aseptic course. The fracture had quite united on August 10th. The wound was quite superficial on Aug. 3rd, and boracic dressing was applied. On August 15th, erysipelas attacked the wound. This passed off, and the wounds were quite healed on Sept. 20th. When dismissed, patient was able to flex his arm sufficiently to enable him to touch his opposite shoulder.
23	Robert H., 30.	<i>Ad.</i> , May 12, 1873. <i>Op.</i> , May 12, " <i>Dis.</i> , July 17, " <i>Result</i> , failed; amputation.	Compound fracture of the carpal bones of the left hand. Extensive laceration of the soft parts. Machinery accident. Patient admitted immediately after the accident.	Wound injected with a solution of carbolic acid in rectified spirit (1 in 5).	Putrefaction occurred in spite of the injection; and as fever set in, Mr. Lister operated on May 16th, removing the carpus and fingers, but leaving the trapezium and the thumb. The flaps were left gaping, and carbolic oiled lint (1-10) was introduced between the flaps. Flaps brought together on May 24th. Stump was quite healed on June 25th.
24	Walter S., 42.	<i>Ad.</i> , May 17, 1875. <i>Op.</i> , May 17, " <i>Dis.</i> , May 21, " <i>Result</i> , in process of cure.	Wound of metacarpo-phalangeal joint.	Washed out with 1-20 carbolic lotion.	Putrefaction was avoided. Treated as an out-patient. Wound followed an aseptic course.
25	Francis J., 48.	<i>Ad.</i> , Oct. 4, 1875. <i>Op.</i> , Oct. 4, " <i>Dis.</i> , Dec. 4, " <i>Result</i> , cured.	Compound dislocation of the ankle; the articular surface of the tibia protruding through a large wound anteriorly. Both malleoli torn off.	The wound was injected with 1-20 carbolic lotion, and an attempt was then made to reduce the dislocation. This failing, the articular surface of the tibia was sawn off, the astragalus being left untouched. Foot fixed at right angles to leg.	Aseptic course. The wound was almost absolutely healed when the patient was discharged. Joint strong and slightly movable. The temperature was on one occasion as high as 100 deg.
26	Henry W.	<i>Ad.</i> , June 8, 1876. <i>Op.</i> , June 8, " <i>Dis.</i> , June 13, " <i>Result</i> , cured.	Thumb and trapezium nearly torn off, and the carpal joints opened. Gunshot-wound.	The thumb, with its metacarpal bone, was removed; the trapezium was also dissected out. The wound and the carpal joints, as far as possible, were injected with 1-5 solution of carbolic acid in rectified spirit.	Aseptic course. Treated as an out-patient after June 13th. On June 31st, it was almost absolutely healed.
27	David S., 13.	<i>Ad.</i> , May 2, 1877. <i>Dis.</i> , after Mr. Lister left Edinburgh. <i>Result</i> , cured.	Large lacerated wound of right knee. Large flap of skin thrown to one side. The mud was ground into the cartilaginous surface of the internal condyle of the femur. The accident resulted from a wheel of a heavy cart passing over his leg.	Shreds of tissue were clipped away, and the cartilage of the condyle was pared with a knife where the dirt was most ground in. The whole of the dirty wound was scrubbed with a nail-brush, and 1-20 carbolic lotion, and, in addition, 1-5 spirituous solution of carbolic acid, was applied. No stitches were inserted. The limb was placed on a posterior splint.	The wound became filled with blood-clot, the deeper part of which became organised. On May 27th, there was a large granulating surface. The wound was quite superficial on June 26th, when boracic dressing was substituted for the carbolic acid. There was at that time very considerable movement of the knee-joint, without pain. In August 1878, "patient visited the hospital, walking without any assistance, the two knees being equally useful, except that the injured one was still somewhat stiff".
28	Ellen M., 12.	<i>Ad.</i> , Nov. 6, 1877. <i>Op.</i> , Nov. 6, " <i>Dis.</i> , Nov. 17, " <i>Result</i> , cured.	Punctured wound of ankle-joint, caused by scissors. The accident happened twenty-one hours before admission. Glairy fluid escaped, and a probe passed into the joint. Foot red and swollen.	Wound enlarged, and joint injected with a solution of carbolic acid in spirit (1-5).	The wound had quite healed on November 17th. Aseptic course; dressed four times. When patient was discharged, the ankle was quite normal, with perfect movement.

[Table of Wounds of Joints, continued.]

No.	Name and Age.	Date of Admission, Operation, and Discharge; with Result.	Disease.	Treatment.	Remarks.
29	Jane D., 50.	<i>Ad.</i> , Oct. 15, 1878. <i>Op.</i> , Oct. 15, " <i>Dis.</i> , June 20, 1879. <i>Result</i> , cured.	Compound fracture of the lower end of the femur, with splintering of the condyles into the joint. Patient was seen one hour and a half after the accident.	The opening in the skin was enlarged. The projecting end of the femur was sawn off, and reduction was effected. The wound was washed out with 1 to 20 carbolic lotion. An incision was made into the knee-joint on the outer side, and a drainage-tube was inserted into the joint, to prevent accumulation of fluid.	Aseptic course. The drainage-tube was removed from the joint on October 28th, and the wound of the joint had completely healed on November 24th: the wound in the thigh healed on December 13th. As the fracture remained united, Mr. Lister injected iodine between the ends of the fragments on February 14th. Union not yet occurring, Mr. Lister cut off the ends of the bones and wired them together with thick silver wire. The femur is still united, but is under treatment.
30	Maria L., 60.	<i>Ad.</i> , Nov. 12, 1878. <i>Op.</i> , Nov. 12, " <i>Dis.</i> , April 19, 1879. <i>Result</i> , in process of cure.	Compound dislocation of the left ankle-joint, with comminuted fracture of the fibula and fracture of the internal malleolus. Skin in the neighbourhood of the wound much contused.	The detached portions of bone were removed; wound syringed out with 1 to 20 carbolic lotion. Dislocation reduced. Drainage-tubes inserted. Dupuytren's splint.	Aseptic course. Some portions of the skin sloughed. When discharged, the wound was almost healed, but the ankle-joint was stiff.
31	Henry B., 22.	<i>Ad.</i> , April 20, 1879. <i>Op.</i> , April 21, " <i>Dis.</i> , May 30th, to come as out-patient. <i>Result</i> , cured.	Patient jumped over Waterloo Bridge; in his descent, struck his left elbow against the side of the parapet. The result was an oblique fracture into the elbow-joint, detaching the internal condyle. There was a small opening in the skin communicating with the fracture.	Wound enlarged; some small fragments of bone removed, and the wound and joint syringed out with 1 to 20 carbolic lotion. Drainage-tubes inserted.	Aseptic course. Wound completely healed on June 30th. The movements of the joint were then very good, and have since that time steadily improved.
32	Samuel M., 54.	<i>Ad.</i> , July 8, 1879. <i>Op.</i> , July 8, " <i>Dis.</i> , July 24, " <i>Result</i> , cured.	Punctured wound of the left knee-joint, just above the patella. The finger, when introduced into the wound, passed into the joint, and felt the under surface of the patella. Synovial fluid escaped. Great pain on movement of the joint. The wound was inflicted about fourteen hours before the patient came to the hospital.	Joint washed out with 1 in 20 carbolic lotion, and with a solution of carbolic acid in rectified spirit (1.5). Drainage-tube inserted; posterior splint applied.	Aseptic course. Pain on moving the knee ceased a few hours after it had been washed out. The wound was quite superficial when the patient was discharged, and the knee was quite movable. Healing was complete on July 31st. The patient was seen in October, the movements of the knee being then perfect.

ON THE INSIDIOUS PROGRESS OF GRANULAR DISEASE OF THE KIDNEY.*

By W. R. THOMAS, M.D., M.R.C.P.,

Physician to the Sheffield Public Hospital and Dispensary; Lecturer on Medicine, Sheffield Medical School.

GRANULAR disease of the kidney is often very slow in its progress, and the symptoms are frequently slight, apparently trivial, and such as are not likely to direct our attention to these organs. The urine may not contain albumen for some time, and the symptoms complained of may be attributed to disease of other organs. I bring the following cases of that kind before the notice of this Society.

CASE I.—A gentleman aged 42, who had worked hard for many years, and who had found that he had great difficulties to encounter in endeavouring to make his way in the world, but had ultimately attained a very good position and had amassed a good deal of wealth, found that, during the last twelve months, he had become weaker day by day; his appetite had been impaired; he had not that aptitude for mental work he used to have; he had a desire to micturate about thrice every night; his sight had gradually become more and more dim; and work, which to him had hitherto been a pleasure, was now looked upon by him with a sense of dislike. He had frequently suffered from pains across the forehead, and had come to the conclusion that he had overworked his brain and that he required rest. I was called in because he suffered from an attack of severe vomiting, which, in spite of treatment, lasted for many weeks. His urine, when examined, was loaded with albumen, and casts were found on making a microscopic examination; it was alkaline, and phosphates were plentiful. The vomiting continued for several weeks, and was always worse in the morning. The quantity of albumen diminished, casts of tubes continued to show themselves, and at last slight general anasarca became visible; the patient one evening suddenly became comatose, and died. On making a *post mortem* examination, the kidneys were found to be very much diminished in size; the capsules were quite adherent; their surface was granular. It was an ordinary granular kidney, in which large cysts were found.

CASE II.—Mrs. —, aged 34, married had borne four children, and had always enjoyed perfect health until two years ago. Ever since that time, she had noticed that her strength was gradually failing her; she suffered from severe dyspeptic symptoms, with frequent vomiting and diarrhoea, the latter alternating with severe cough from bronchitis, but there was not any evidence of phthisis; frequent desire to micturate

was complained of, and the act of micturition was accompanied by pain; the urine was loaded with albumen, exhibited casts, and oxalates were plentiful. No history of alcoholism could be found, nor could the disease be accounted for. The severe vomiting continued, the diarrhoea also. Then for a few weeks but very little urine was passed, uræmic convulsions came on, and the patient died. *Post mortem*, granular kidney was found.

CASE III.—Mr. — complained that, for the last four years, his health had gradually become more and more shattered; he had suffered from aching pains in all his limbs, nausea with vomiting, constipation; his sight had lately failed him; his legs tottered; the urine contained albumen and casts. A distinct blue line could be seen along the gums. He had been in the habit for the last twenty years of taking snuff; he was recommended to abstain from using it. The symptoms to a certain extent now subsided, and he partly regained his former state of health; but, in a few months afterwards, he caught a severe cold, and died of pneumonia. After death, among other appearances, the kidneys were found to be very small and in a granular state.

The first patient was a gentleman who had always undergone a great deal of mental exertion and worry, which had ultimately brought on serious renal disease. This is a case somewhat similar to those ably described by Dr. Clifford Allbutt, in a paper written by him in 1877. The symptoms complained of by him at first were simply those of dyspepsia, with head-symptoms, from which we would naturally expect one who had overworked his brain to suffer, yet, at the same time, grave disease was, I have no doubt, progressing in the kidneys, which would have been found out had medical advice been sought for earlier.

The second patient complained at first only of dyspeptic symptoms, with failing health; then came on severe vomiting and diarrhoea, and death ensued from convulsions. As the patient's health had been becoming worse for two years, I doubt not that the renal disease had been steadily progressing long before the more serious symptoms appeared.

The third patient had a number of the symptoms complained of by patients poisoned by lead, and at the same time chronic renal disease was progressing, owing no doubt to the irritation produced by the presence of lead in the blood circulating through the kidneys.

I have brought these cases before the notice of this Society because, in the first place, *post mortem* examinations were made, which proved (though I have not troubled you with the other *post mortem* appearances) that granular disease of the kidney was the principal cause of death in every instance; and to remark, that our attention may often be drawn to the fact of renal disease being present by the patient complaining of such symptoms as persistent frontal headache; symptoms of cardiac hypertrophy, without valvular disease; dyspepsia; vomiting;

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