December 6th. She has had no more fits, but has a bad cough. The mixture and pills were repeated.

December 20th. She was discharged well; but was directed to continue the mixture and pills a week longer.

CASE VIII. E. P., aged 9, female, was admitted October 8th, 1857. She has been ill three months "with fainting fits"; but, during the last fourteen days, has had "struggling ones". The fits begin with drowsiness: she lies down and goes to sleep; in about ten minutes, the fit comes on with struggling and screaming; she complains that her head is coming off; she loses consciousness for three-quarters of an hour. She had two fits yesterday in the afternoon. The head is not hot; the urine is rather pale; the tongue clean; the skin cool; the pulse weak; the bowels costive. She is restless at night, talking and tossing about. Her appetite is not good; she will not take meat. She has a discharge from a scrofulous sore on the foot, connected with diseased bone. Before the fits came on, she used to have abdominal pains like cramp; these have ceased. The treatment employed was citrate of iron and quinine, and cod-liver oil, with tincture of nux vomica during the latter six weeks. Under this she improved greatly, was reported "not like the same child", and the fits ceased. A blister was once applied to the neck, but it did not seem to do any good. About six weeks before her discharge, the following note was made:—"She appears as if her intellect was affected, is unaccountably lively after the occurrence of pain in head, which comes on generally about 6 P.M., and is attended with great heat in forehead." Two years previously, this girl had been under my care with enlarged cervical glands, and she is again at the present time affected in the same way, but has no convulsions.

REMARKS. The antecedents of this case were such as to raise serious questioning whether the symptoms might not be owing to the presence of tubercle within the cranium. It seemed, however, quite possible that they might result from some unknown morbid influence on a weakly nervous system; and I was the more inclined to this more hopeful view, from experience of analogous states. These two last cases illustrate the occurrence of convulsions, as a form of nerve-disorder, in circumstances very similar to those under which paralysis or failure of power is observed; and also their cure by the same kind of treatment as has been shown to be beneficial in paralysis. If it should appear to any one that this last case was an instance of ordinary epilepsy, I must reply, that the nocturnal restlessness, the periodic head-pain, and the result of treatment, seem to me to make an essential difference. Moreover, the mere name of epilepsy, without any causal indication, explains nothing. I will admit that the convulsions were epileptoid, but I conceive that the case may be ranked with the foregoing, in which some causal influence may probably be traced.

CASE IX. W. H., aged 65, a coachman, was admitted December 7th. He was suffering with his usual winter catarrh, which he had had the last six or seven years. There was no febrile movement. On December 31st, he was suffering from diarrhoea and increased bronchitis. He improved under the treatment adopted till February 21st, when he was attacked with hemiplegia of the left side as he was sitting at home. The arm was most, and the leg but little affected. After this attack, he lost his cough and expectoration almost entirely. He was admitted into St. Mary's Hospital February 26th, and took five grains of sesquicarbonate of ammonia three times a day for twelve days, and then one-twelfth of a grain of strychnia three times a day. On March 16th, when I saw him, he had some difficulty in speaking; but the arm and leg had almost entirely recovered from the paralysis. While asleep, the right cheek was puffed out in expiration; but when he was awake, both cheeks acted well.

CASE X. Anne D., aged 68, needlewoman, was admitted March 8th, 1858. She had been ill eight days. She had had a slight fit, which took her senses away for some good while. The left arm is now paralysed in such wise that she cannot bend or extend the hand; but it does not hang motionless; she has use of the upper arm. The hand feels numb and weak; and pain extends up her arm, especially at night. Her speech was very much impaired for some days; she can put out the tongue straight now. The bowels are open. There is no febrile action, no pain, or heat about the head. The urine is thick, but not red. She is thin and feeble. She was ordered to take five grains of sesquicarbonate of ammonia three times a day, to which a drachm of tincture of cinchona was added after a week; and she took a mild aperient occasionally. By March 29th she was well enough to be discharged, having im-

proved steadily from the first. She is now again under my care, but has had no return of the paralysis.

REMARKS. The age of these two last patients would lead, *a priori*, to the belief that the cerebral disorder depended on some actual lesion of structure, probably on giving way of some small blood-vessels. Yet the treatment that was found beneficial almost forbids the idea that such was the case. The two cases, though furnishing no conclusive evidence, are yet very suggestive. What would have been the result of purging, blistering, and a course of mercury?

Gulstonian Lectures

ON

FEVER AND INFLAMMATION.

DELIVERED BEFORE THE

ROYAL COLLEGE OF PHYSICIANS, LONDON,
1859.

By WILLIAM ADDISON, M.D., F.R.S., Fellow of the College.

LECTURE I.

MR. PRESIDENT AND GENTLEMEN,—If we carefully examine into the causes which produce disease, it will be found that, in a great majority of instances, they may be resolved into some violation or neglect of the natural laws upon which the healthy actions of the animal frame depend. So also, on the other hand, the means of cure in such cases will be found to consist in aiding and adjusting natural efforts to reestablish those laws and conditions which have been outraged or infringed. Let us observe what these natural efforts are.

In the repair of injuries to the human body, certain parts are healed by the growth or production of elements identical with those of the wounded texture. On the other hand, there are organs, injuries to which are repaired, not by the growth of elements identical with those composing the injured organ, but by elements of the same kind with those which are effectual for cure in the former cases. The result is that, in all examples, and in very different parts of the body, the elements of repair appear to have a common form or nature. Now, the parts which are restored by the production of elements identical with those composing the injured texture, are such as have the most general distribution in the body, and are ministering to the purposes of life in the lowliest or simplest manner.

For example:—Fibrous and connective tissues and blood-vessels are everywhere present; no part of the body can be said to be without them; all these are speedily reproduced or repaired when injured or broken. Tendons, ligaments, and bones, are of very general distribution: these also are repaired by new growths of tendinous and osseous tissues. But when we come to investigate the healing process in more special organs, it assumes a different aspect. For, if a portion of the muscular flesh be rent away by an accident, cure is effected, not by the growth of new muscular fibres, but by a growth of common fibrous tissue. So likewise, if a part of the lung, of the brain, or of the liver or kidney, be destroyed by accident or disease, cure, if effected in these instances, is so, not by a growth of the special parenchyma, but by a common fibrous tissue.

Upon this ground, then—namely, the common form of elements of repair—we purpose to review the human body as a structure composed of three orders or classes of parts: a common tissue; the blood; and parenchymatous organs.

I.—A COMMON TISSUE: ITS SEVERAL FORMS AND USES.

The areolar tissue is a common tissue diffused throughout the whole body. It invests the exterior, and enters with the blood-vessels into the interior of every organ. Its elements everywhere incorporate with the coats of the vessels. And in all fibrous membranes the elements of the membranous tissue between the blood-vessels are of the same kind with those forming the coats of the vessels.

In natural growth, in the embryo, areolar tissue is at first composed of cells and nuclei; and the coats of the blood-vessels, and those parts of the body which are hereafter to become tendons, ligaments, and bones, consist in the embryo of cells and nuclei also. As growth proceeds, the areolar tissue becomes fibrous; and, *pari passu* with it, the coats of the

blood-vessels, tendons, and membranes generally, become fibrous. When growth has been completed, nuclei are found incorporated with the fibres in fibrous membranes, in the coats of the blood-vessels, in capillaries, in periosteum, and also intermingled with the elements of bone. Fibrous membranes and areolar tissue are modelled to the subdivisions of the organ they invest; and bones mould themselves to the soft parts they enclose. If the brain be monstrous at birth, the fibrous membranes and bones investing the organ are monstrous also.

In animals where the hair is particoloured, the fibrous tissue of the skin is patched in corresponding lighter and darker shades; and in such cases we have observed the pia mater patched in similar shades, the pigment being incorporated in the coats of all the small blood-vessels. In some birds of dark plumage, the periosteum is almost black, the tendons are tinged with black, and the coats of the blood-vessels are spotted black.

We have said that the elements of repair have a common form. In the human body, all mechanical injuries, wounds, and fractures, are cured by a common granulation and fibrous tissue, which pass through the same phases of growth as the original connective tissue and blood-vessels in the embryo.

From pathological anatomy we know that plates of osseous tissue are often found incorporated in fibrous tissues, and also in the coats of the blood-vessels; nay, they sometimes hang loose in the form of *phlebolites* in their interior. In five instances of phlebolites examined by Dr. John Reid of Edinburgh, and in others observed by Dr. G. Burrows, Tiedemann, Otto, Carswell, etc., they were attached to the inner coat of the veins by thin fibrous cords. Dr. Reid describes them as hard as bone; two of them were analysed and found to consist of phosphate of lime, carbonate of lime, and animal matter in proportions similar to those existing in bone.

In some experiments recently published, it was found that the periosteum, when separated carefully from a bone and wrapped round a portion of the muscular flesh in a living animal, continued to generate or secrete bone around the muscle, as it would have done around the bone had its removal from it not taken place. And generally all fibrous tissues, both those of original and those of reparative growth, are disposed to, and do very frequently, take on a change to bone or osseous tissue.

These are the grounds upon which we argue a common nature or a common element in the blood-vessels, and in the fibrous and osseous tissues. Periosteum, pericardium, dura mater, pia mater, the coats of the blood-vessels, areolar tissue, tendons, ligaments, and bones,—all these we propose to comprehend under the designation Common Tissue, because they are all repairable by the production of conformable elements. They have a common mode of growth; and are all subordinate tissues—connective, blood-distributing, and supporting tissues.

Objections, no doubt, can be raised against this comprehensive classification; but we shall endeavour to substantiate its propriety by numerous facts; and, when particulars are properly placed in harmony, they become united and form a class, which, if appropriate, may suggest laws fitted to form elements of higher inductions.

Blood, as it circulates in the living body, consists of a colourless fluid; and swimming in it are the red corpuscles. When withdrawn from the body by venesection, blood soon coagulates, forming a uniform soft solid, which is commonly of a deep red colour throughout. There are many occasions, however, where blood before coagulation separates into two parts; the uppermost fluid and colourless, the lower red. The former part, termed lymph, plasma, or liquor sanguinis, forms on coagulation a tough, white, fibrous clot, or tissue; the latter part contains the red corpuscles, and forms a much more loose or friable mass. This spontaneous separation of blood whilst still fluid into two parts, viz., the colourless element or plasma, and the red corpuscles, warrants the distinction we shall preserve and enforce between the fluid or plasma and the red corpuscles.

II.—RELATIONS OF THE COMMON TISSUE TO THE FLUID OR PLASMA OF THE BLOOD IN NATURAL GROWTH, AND IN THE PROCESS OF REPAIR, AS OBSERVED IN COMMON INJURIES.

The human embryo is a body which, in a brief space of time, grows from a microscopic mass of colourless cells into a complex structure composed, with other things, of numerous forms of fibrous tissue, blood-vessels, tendons, ligaments, and bones. At this time, the blood abounds most profusely in

colourless or plasma elements. During pregnancy, the placenta, a mass of common tissue, and the blood-vessels of the uterus, are in active growth; and the blood of the pregnant woman abounds in colourless elements. On viewing the circulation of the blood in a living animal, if the part under observation be roughly handled or irritated, the colourless or plasma elements of the blood may be seen lingering upon or adhering to the coats of the vessels; whereas no such attraction is seen between the coats of the vessels and the red corpuscles. The ordinary process of repair involves new growth of blood-vessels and fibrous tissue; and, if blood be drawn from within the sphere of the action, it is found to be highly charged with colourless or plasma elements. The inference from these facts is, that the plasma or colourless elements of blood furnish material for the growth of the common tissue.

But what are the proverbial effects of common injuries? and with what phenomena is their healing or cure accomplished?

If a part of the body be scalded, it speedily becomes red, and a colourless fluid is effused beneath the epidermis; after a short time, the sore or wound heals spontaneously. In burns, the object inflicting injury is higher in temperature; its influence extends more deeply; a portion of the skin is killed. At first, the dead part adheres firmly to the living parts beneath; but afterwards, when a discharge of pus appears, it loosens, and may be easily taken away as a slough, without pain or bleeding.

CASE. A young lady with fever had been in bed fourteen days; and a slough formed on the lower part of the back. When first examined, it was black and dry; it adhered very strongly to the parts beneath, and any attempt at its removal would have caused pain and bleeding. But, a few days afterwards, when a discharge of pus appeared, the slough gradually became loosened, and then peeled off spontaneously, without pain or bleeding.

In all cases, the detachment of a slough without bleeding is consequent upon the appearance of the purulent discharge; and when it has fallen off, a new tissue, termed granulations, comes into view. These consist of new blood-vessels traversing embryoniform elements; and they follow the same course of growth as the common connective or blood-distributing tissue in the embryo. Granulations change into fibrous tissue for the reparation of fibrous tissue, and into bone for the repair of bone.

But, before a slough can thus fall off, there must have been a severance of the blood-vessels and other bonds of connexion which previously united the dead with the living parts. This severance is accomplished by granulations and pus, without any bleeding. And, as the new vessels of the granulations carry on the circulation of the blood, so therefore there is positive proof that the older vessels must have been opened for communication with the new ones by alteration and absorption of their coats, without any loss of blood.

When a thorn has entered the flesh, if it be not speedily removed or taken out, abscess and ulceration appear in the parts around; and thus the offending body is loosened and discharged. The action thus set up will go on until the foreign body be cast out; whereupon the parts return to their natural state spontaneously.

CASE. A forgerman was struck in the eye by a small particle of iron, which remained impacted in the cornea. He had been suffering from the accident for three or four days. The eye was red, from preternatural vascular action; and through a lens the wound in the cornea was seen filled with pus, the particle of iron still sticking in the middle of the sore. Abscess and ulceration had taken place in the tissue in contact with the foreign body. And that they formed part of the natural effort to loosen and cast out the injurious substance, may be presumed; because, upon the removal of it by surgical means, abscess and ulceration ceased spontaneously, and the eye in a very speedy manner was restored to its natural state, without any further extraneous aid.

If the ends of a fractured bone be examined between the first and tenth day after the injury, the periosteum and medullary membrane are found torn; the neighbouring soft parts swollen; and blood is effused between the fragments. The periosteum and medullary membrane have, both of them, lost their fibrous character at the place of fracture; both have become the seat of a mass of granulations, which grow in the form of rosy points, and unite, interlacing with one another, so that the fractured ends of the bone are surrounded on all sides by granulations. From the tenth to the twentieth day, the granulations assume a firmer and more fibrous character; they are converted into fibrous tissue. Between the twentieth and the

sixtieth day, according to the age and constitution of the patient, the fibrous tissue becomes converted into a spongy, and finally into a compact osseous tissue.

The liver or kidney is sometimes the seat of a parasitical creature termed *accephalocyst*. In such cases, abscess and ulceration may take place in the surrounding tissue; and it is worthy of note to observe the outlet of the contents of the abscess frequently barred in all the most dangerous directions by a thickening and strengthening of the fibrous tissues, whilst, at the same time, in some safer point of the circle, the overlying tissues are thinned away by absorption. Likewise in the lung, if an abscess, the result of softening tubercles, be near to the surface of the organ, and therefore likely to discharge its contents into the cavity of the chest, the accident is provided against. Adhesions form between the wall of the chest and the lung. Fibrous connective tissue grows abundantly upon the threatened spot, whereby the escape of matter from the abscess in that dangerous direction is very often prevented.

When a blood-vessel has given way in the brain, a clot is formed, and the contiguous parts are softened by a species of abscess. If all other circumstances are favourable to recovery, reparation in a great degree is effected, even in these cases. The walls of the abscess change into common fibrous tissue; absorption of all the fluid part of the clot ensues; and the new fibrous tissue fills the space which may have been occasioned by any spoiled or lost portion of the brain-parenchyma.

In small-pox, numerous pustules or abscesses appear in the skin. With the full growth of the pustules, the fever declines.

In all these examples, granulations and pus—abscess and ulceration—are established for the avoidance of greater dangers, for the purpose of throwing off dead and injurious matter from the living body. Nor can we doubt that the purulent discharge in such cases performs an office in the series of events as useful and necessary as the granulations. Granulations and pus are both of them forms of primitive or embryonic cell-growth. Granulations are the basis of the new repairing texture: they are traversed by numerous new blood-vessels; and they change, as before said, into fibrous tissue where fibrous tissue is needed for cure; and this again changes into bone where bone is needed, as it is for the cure of a fractured bone. Pus, on the other hand, is incoherent, and seems by this special quality to be fitly an agent in the separation of sloughs, and in the discharge of other injurious matters from the body. The particles of pus are colourless, and granulations are red only by reason of the number of new blood-vessels which traverse them; for, when granulations are altering into fibrous tissue, the number of blood-vessels greatly diminishes; and then the texture resumes its natural or proper hue, which is colourless or white. Abscess and ulceration are terms which comprise the effects produced upon the older tissue by the growth of the new one; namely, the loss and absorption it undergoes.

Let us briefly recapitulate the facts, and state our conclusions.

At early periods of natural growth, and in pregnant women where the placenta is growing, the blood *generally*, and, within the sphere of new growth for purposes of reparation, the blood *locally*, is highly charged with colourless or plasma elements. The fluid which exudes from the blood-vessels upon slight injuries—scalds, blisters, and scratches—scarcely differs at all from the plasma. The elements of granulations and pus are colourless, and hardly to be distinguished from the colourless corpuscular elements of the plasma which may be seen in some animals adhering to and accumulating upon the inside of the coats of vessels which have been irritated or wounded.

"The elements of exudations," says Rokitsky, "are found preformed within the vessels; and the character of the subsequent products is thus shown to be dependent upon inbred transformations of the blood, and more particularly of its plasma." Or as we, in somewhat different words, gave expression to the same fact many years ago, "Colourless corpuscular elements of the blood accumulate upon the coats of irritated or injured blood-vessels, and thereby change their character; and from the altered vessels issues the new product, both in repair and inflammation."

Our conclusion is, that a common connective blood-distributing tissue is diffused throughout the whole body; that blood-vessels, fibrous tissues, and bones, are forms of this tissue; and that, in all cases of injury—wounds and fractures—cure is accomplished by new productions of this tissue, the materials of which are derived from the fluid of the blood.

There is, then, a more intimate relation between the fluid of

the blood and its containing vessels, than between them and the corpuscles of the blood. And blood-vessels are quickly repaired and reproduced, because their coats are constructed of elements of the plasma—elements which readily corpusculate and fibrillate.

A slough of the skin or outer integument is thrown off easily, without bleeding. In such cases, we presume, therapeutical reactions, comprising suppuration, ulceration, granulation, and purulent discharge, are observed under the best circumstances.

In carbuncle, the dead tissue lies beneath the living skin. The process of separation is therefore protracted until a free outlet has been made either by the natural efforts, or by the knife of the surgeon. In common issues, granulation and suppuration may be almost indefinitely protracted by keeping peas in the sore. In necrosis of bone, the dead bone lies beneath the living skin; nay, sometimes it is included within a shell of new grown bone. In all these cases, granulation, suppuration, and ulceration, are protracted or chronic. The protraction, however, is not chargeable upon any pathological action; the action is physiological, tending to repair; but success is hindered by physical difficulties, as in the following example.

CASE. George S., aged 18 years, was admitted into the Sussex County Hospital on April 1st, 1857, under the care of Mr. Lowdell. He had suffered for four years from necrosis of the tibia. Portions of dead bone had from time to time been removed; but no great benefit had resulted. He had now two fistulous openings—one at the upper end of the bone, the other close to the inner ankle—through both of which dead bone could be felt. The intermediate portion of the leg presented that chronic thickening and inflammation of the skin which usually arise from long continued disease. He was anxious to undergo any operation; for the continually repeated attacks of inflammation impaired his health, and rendered him unfit for any work.

Chloroform was administered; and an incision was made along the front of the upper part of the tibia, so as to include the upper opening, and penetrate to the bone. Dead bone could now be seen; but the opening through the new bone was so small that it required enlargement before any portion of the sequestrum could be taken hold of.

"I now found," says Mr. Lowdell, "that the dead bone reached downwards the whole length of the tibia; and then began the physical force part of the operation—the trephining, chiselling, and gouging through new bone, so hard and thick that the proceedings were more like those on a carpenter's table than operating on the human subject. The opening made in this man's tibia was eight or nine inches in length, more than an inch in depth, before all the dead bone could be removed."

The recovery was complete and satisfactory. In a few days after the operation, the surface of the bone was covered with granulations; new integument formed; and in less than three months the patient was discharged cured. His leg was, in June 1858, as strong as the other.

In this case, it is demonstrated, as much as anything of the kind can be, that the action which had been going on for years, and which contributed to weaken and disable the patient, was not a diseased action, in any proper sense of the terms. On the contrary, it comprised the resistance opposed by the living tissues to the decomposition of the dead bone.

The fistulous openings were outlets for the discharge of spoiled and offending matter, necessary so long as the dead bone remained: and, because the reactions cannot effect the expulsion of dead bone in diseased joints and other cases, we have no warrant, therefore, without heed of the surrounding circumstances, to invest them with an exclusively pathological meaning. Therapeutical reactions (as in the case related), when opposed by insurmountable difficulties, may contribute to weaken and undermine the health of the person; but without them a decline of the life of the patient would be the more rapid, because the decomposition of the dead bone would, in such case, be speedily communicated to the contiguous tissues. In all severe injuries—compound fractures, crushed joints, contusions, and lacerations—inflammation, suppuration, granulation, and purulent discharge, must be regarded as phenomena of therapeutical reaction, notwithstanding that, from the severity of the accident or other causes, the health and life of the patient may be endangered in their progress.

It follows, then, that forms of inflammation, granulation, pus, suppuration, and ulceration, are ordinary phenomena of therapeutical reaction in injuries and disease of the com-

mon tissue. The action is between the blood-vessels and the plasma or fluid of the blood; and protraction or chronicity, or even danger to life from physical hindrances, does not impugn the idea or exclude the conception of a process established for reparation, though it should fail.

In the examples we have particularised, the common tissue takes the initiative, as it does in all mechanical injuries. Let us, then, now proceed to speak of the other element—the other moiety, as it were—of the action; namely, the fluid or plasma of the blood.

[To be continued.]

Transactions of Branches.

SOUTH-EASTERN BRANCH: ROCHESTER, MAIDSTONE, GRAVESEND, AND DARTFORD DISTRICT MEETINGS.

REPORT OF A CASE OF EXTENSIVE PHAGEDENIC ULCERATION: WITH A FEW OBSERVATIONS ON THE ADVANCED STAGES OF SYPHILIS.

By JAMES DULVEY, Esq., Brompton, Chatham.

[Read March 25th, 1859.]

I HAVE been induced to bring before you the details of the case I am about to describe, not from any peculiar points of interest which it exhibited, nor from the frequent occurrence of such instances in private practice, but from the circumstance that, when a case of the kind does occur, it proves one of the most perplexing and protracted affections with which the practitioner has to deal.

A. B., aged about 40, sent for me on January 31st, 1856, having been discharged from the Middlesex Hospital, at his own request, on the preceding day. I found him suffering from extensive ulceration, evidently the consequence of syphilis. On the abdomen there was a large ulcer, in the form of a parallelogram, extending from just below the umbilicus nearly to the pubes, having on its upper and right sides a ragged overlapping edge. The sound skin above the ulcer was so high that it was clear there had been great destruction of substance. In the left iliac region, besides several superficial circular sores, there were two deep excavations with raised edges: one of them was in the shape of a horse-shoe; into the other a crown-piece might have been put. Another ulcer extended from the groin upon the left thigh, four inches in width, and of considerable length; and in the perinæum, immediately under the scrotum, a triangular cavity had also been produced, into which the point of the finger could easily be inserted.

In order to avoid repetition, I may here state that, at a subsequent stage of the case, partly from the treatment which was at one time adopted, and partly from the spreading nature of the cutaneous disease and the thorough impregnation of the constitution with the syphilitic poison, the ulcers, as measured by the patient himself, attained the following extent. That on the abdomen became twelve inches and a half in width (that is from side to side) at the upper edge, and seven inches and a half in length from above downwards; but the lower edge, which ultimately extended to and embraced those in the left iliac region, presented a width of sixteen inches. The width of that from the groin upon the thigh became six inches and a half, but from the outer edge a serpentine ulcer ramified under the thigh to the extent of twenty-two inches and a half.

The ulcers, when first seen, presented an unhealthy appearance: they were of a mahogany colour; and those upon the thigh and abdomen were studded with blackish circular lobes, about the size of a sixpence.

Constitutionally, the patient was in an exhausted condition, and for some time previously had only obtained sleep from the use of morphia every night.

Of the early history of the case my report must necessarily be incomplete, as he had been under treatment fourteen months before I saw him; but I gathered from him that, in November 1854, he had a small sore on the penis, which continued for nearly four months; and that, about a month after the first appearance of the sore, a bubo formed in the left groin, which was, in the course of time, freely opened. Ulceration appears then to have ensued; and on May 30th, 1855, four months after the opening of the bubo, he was admitted an

in-patient of the Middlesex Hospital, where he remained eight months. Through the kindness of Mr. Shaw, the senior surgeon of that institution, I have learned that the following treatment was there adopted, at different times.

Internally: Donovan's solution; quinine; syrup of the iodide of iron; opium, given long and largely.

Locally: Cinnabar fumigation; lotio nigra; nitrate of bismuth ointment; balsam of Peru; linimentum æruginis; ceratum resinæ cum terebinthina.

On two occasions, he was put under the influence of chloroform, and the ulcerated surface freely cauterised with nitric acid. The diet was of the fullest.

I also ascertained from the patient that mercury had twice been extensively administered, with the view of producing salivation, but without effecting this object—first by his original medical attendant, and secondly after his admission into the hospital. I prescribed the following:—

R Pilulæ hydrargyri gr. v; sulphatis quin. gr. ij. M. Fiant pilulæ ij omni nocte sumendæ.

R Potassii iodidi gr. vj; infusi gentianæ comp. ʒss; aquæ cinnam. ʒi. M. Fiat haustus ter die sumendus.

He also took one-third of a grain of muriate of morphia every night, which was gradually increased to a grain. Locally, I applied an ointment composed of equal parts of ceratum resinæ and ceratum cetacei during the day, and a carrot poultice every night.

At the end of six weeks, the ulcerated surfaces looked much more healthy: the circular holes had nearly filled up, and had lost their blackish hue; but there was no disposition to heal: on the contrary, the ulceration gradually extended. The mercury was now discontinued, and cod-liver oil added to the other constitutional remedies: and for a short time a lotion was applied, composed of sulphate of copper in a watery solution of opium. On March 30th, Dr. Martin kindly saw the patient with me; and, having derived great benefit in a similar case from the use of the tar ointment, he recommended me to give it a trial. It was applied on strips of calico, and the abdomen and thigh afterwards well bandaged. This plan was steadily persevered in for three weeks; but during this period the ulceration fearfully increased, and, although the ointment was tried in a diluted form, yet it was without avail. In the month of May, a hospital surgeon, of long experience among seamen and marines, also saw the case, and advised, internally, the use of arsenic and mercury, and externally the oxide of zinc ointment, with alternate applications daily of nitrate of silver in solution, and of creasote. These measures likewise failed; and, either from the intense pain produced by the caustic, or from the effects of the arsenic and mercury, or from all these causes, the constitutional powers went down rapidly, and there were fears of the patient sinking. Quinine in large doses was then combined with the cod-liver oil, and soothing applications used. The simpler kinds of external remedies proved, however, as abortive as those of a more severe character. I then determined to try the benzoate of zinc in the following form:—

R Gum. benzoes ʒj; spiritus vini rectificati ʒss. Dissolve with the aid of heat, and filter. Mix this tincture with a drachm of oxide of zinc, and add the paste thus made to an ounce of prepared lard. The ointment was applied twice in the day.

In six weeks from the commencement of this application, there was a marked improvement. The improvement, moreover, commenced at two of the worst points, namely, at the overlapping edges on the abdominal surface, and in the deep seated ulcers in the left iliac region. The strength of the benzoic tincture was gradually increased till a saturated solution was made, and in four months a considerable portion had healed; still, as in most of these cases, fresh places appeared, and, when the ulcer healed on one side, it extended on the other; and, independently of this extension of existing ulcers, the slightest abrasion of the skin invariably produced a circular sore, which in a short time assumed the shape of a horse-shoe. No caustic application arrested the progress of these. They would have their course, in spite of everything.

When the constitutional powers had rallied, the quinine was discontinued, and the iodide of potassium resumed; the potassio-tartrate of iron being also given in large doses. As the system became impregnated with the iron, the disease gradually gave way; fresh ulcers ceased to be formed; and ultimately, but after a lengthened period, those which remained were healed, the serpentine ulcer under the thigh being the most obstinate and protracted.

Occasionally, stimulant applications became necessary. In