Neutrophiles	...	...	58.0 per cent.
Large mononuclears	...	...	6.5 "
Lymphocytes	...	...	30.5 "
Eosinophiles	...	...	2.0 "
Transitional forms	...	...	2.0 "

No myelocytes or nucleated red cells were seen.

On September 25th the urine was again examined for albumose, but with entirely negative results. This absence of albumose was kindly confirmed by Professor Walker Hall.

On October 2nd a semi-fluctuating swelling appeared over the first and second costal cartilages and intervening interspace on the right side, some discoloration of the skin over it giving the swelling the appearance of a bruise. The temperature, which had previously been irregular, went up to 100.6° F. The costo-chondral articulations had in the meanwhile been increasing in size, and that of the fourth right rib was semi-fluctuating. The patient had for days complained of such pains and soreness all over him that a cradle had to be obtained to keep off the pressure of the bedclothes.

By October 15th the swelling over the first intercostal space had almost disappeared. The tendency to mental wandering, from which he had suffered for some days, was now so great that he only at rare intervals recognized any one, and death, which was preceded by a rigor and a temperature of 102.6° F., took place on October 17th.

At the autopsy the body was extremely emaciated. On reflecting the skin from the thorax, some enlargement of the sternum was obvious near the sterno-clavicular articulations. There were also definite swellings about the size of small hazel nuts over the costo-chondral articulations, especially on the right side, and over the four upper ribs. There was much weakness of the ribs on the right side, which were easily fractured. The heart was enlarged, myocardium very soft and friable, and the valves all somewhat thickened, but there was no recent endocarditis. Atheromatous changes were advanced in the large vessels. The lungs were congested at the bases. There were no growths and no enlarged glands at the roots of the lungs. There was no pleural or pericardial effusion. The stomach was dilated, but there was no growth. There were two simple cysts in the left kidney. No calcareous nodules like those described by Parkes Weber in a similar case were found. The liver was fatty; the spleen very small, with some thickening of its capsule. There were no growths in any of these organs, or in the pancreas, suprarenals, intestines, or rectum. All the ribs appeared to be infiltrated with growth, while those on the right side were extremely friable. The growth was red and soft, and apparently confined to the medulla. The compact outer bone had in many places become extremely thin, and in some parts expanded, so that the bones appeared to be much enlarged. The periosteum covering the bodies of the vertebrae was markedly bulged in the lower part of the thorax, where the vertebral bodies were about one and a half times their normal size. In no place did the growth extend through the periosteum. In the bodies of the vertebrae could be felt a soft growth, which was easily displaced on pressure with the finger, which then encountered sharpish spicules of bone, feeling very much like soft white coral. A similar condition was found in the upper part of the lumbar vertebrae, where a marked lateral dislocation of the bodies of the vertebrae had taken place. The long bones of the body could not be examined, but there was no evidence to indicate that these were in any way implicated.

Over the common iliac artery on the right side a few enlarged glands about the size of filberts were discovered. Subsequent microscopical examination of these showed that they had the same structure as the growth in the bones. Similar involvement of a few of the glands of the body has been observed in a few other cases. It would appear to occur very late in the disease, and no other organs have been found to be involved.

The sections of the growth have been submitted to Professor Walker Hall, and we are much indebted to him for the following observations on them:

The cells of the growth are of three types:

1. Round cells, uniform in size, with a large, pale nucleus and large protoplasmic contents, which is granular in character.
2. Round or polyhedral cells with a small, deeply-staining nucleus and finely granular protoplasmic contents.

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3. Large round cells with large round, deeply-staining nuclei; finely granular protoplasmic contents.

A reticulum occurs in fine fibrous strands. The blood vessels are very thin-walled. This tenuity of the vessels will account for the haemorrhage which took place into the growth at the upper part of the sternum. No abnormal quantity of nucleated red cells, lymphocytes, or plasma cells are seen. The granules met with in the cells are fine, and do not show any regular arrangement. They are not brought out distinctly by Leishman's stain, but by a modified eosin and methylene-blue method they are found in some, but not in every cell. They appear to be neutrophilic rather than oxyphilic in character. The arrangement of the cells conveys the idea of sarcomatosis, but this is not borne out by the other characters of the tissue, except that of the vascular channels.

The following forms of myelomatosis are ruled out of court:

1. The erythrocytoma of Ribbert, which consists of a hyperplasia of the nucleated red cells of the marrow.

2. The mixed form, which consists of nucleated red cells, lymphocytes, and myelocytes.

3. The lymphocytoma, in which the growth consists of lymphocytes only.

The conclusion, therefore, reached is that the growth consists of cells which evidence the characters of the cells which occur in the marrow, and which are regarded by many as the predecessors of the myelocytes.

As this case proved eventually to be one of multiple myeloma, it is unfortunate that we were unable either to demonstrate the existence of albumosuria, or that we are unable to state that it had never been present, for we feel that it may have existed earlier in the course of the disease, at a time when the possibility of its presence was not suspected.

A CASE OF SCURVY OCCURRING IN A DIABETIC.

By W. E. JONES, M.R.C.S., L.R.C.P.,
BLACKBURN.

CASES of land scurvy in adults are sufficiently rare in this country to justify the publication of the following:

The patient was a man aged 44, a bootmaker. Had never resided abroad, was in comfortable circumstances, and had had no previous illness until about two years ago, when he was discovered to be suffering from diabetes. He had great thirst and a voracious appetite, with great loss of flesh. The specific gravity of the urine was 1060, and contained much sugar. He was placed on a not very strict diabetic diet and given some form of opium.

He gradually went from bad to worse, and a friend advised him to try the following modified Salisbury diet: To drink 2 quarts of water a day, and eat 2 to 4 eggs and 2 lb. of beef, fried and minced. He tried this diet for twelve months and improved greatly; he increased in weight and strength, and the sugar vanished entirely from the urine. As time went on he became tired of the diet, and added a little fish, and sometimes toast or diabetic bread; he gradually became pale and very weak; his urine, as tested by himself, was still free from sugar, and his confidence in the diet was so great that he still persevered with it, fearing a return to his previous condition.

I now saw him for the first time after twenty-one months of the diet; he had had absolutely no vegetables of any kind, but fresh cooked meat in abundance. I found him pale, his face was puffy and of a yellowish tinge. He was thin, and complained of intense weakness and dizziness; he had pains all over his body, especially in the legs. There was no rise in temperature. The gums though not swollen were maroon coloured, and mastication caused them to bleed. The other mucous membranes were blanched. His left leg was semi-flexed, and could not be straightened or bent because of a very painful diffuse swelling in the ham, which extended nearly half way up the thigh; the skin in this region was black and blue, and hard as a board, and intensely tender. The leg was dotted over with larger and smaller patches of punctiform haemorrhages, many of them at the base of hair follicles. There was oedema on the front of the leg, the tibia being very tender. The posterior surface of the leg was free from oedema. In addition there were several subcutaneous haemorrhages on the dorsum of the left foot and in the right popliteal space. There was no injury to account for the haemorrhages, his heart was normal, as were his arteries. The urine, specific gravity 1020, contained a trace of sugar, but no albumen. There was no night blindness. On one occasion he had had a severe attack of syncope.

Treatment consisted in letting him have as plentiful a supply of such fresh vegetables as a diabetic can have—for example, watercress, lettuce (portions of), small onions, tomatoes made into a salad with vinegar, cabbage, brussels sprouts, fresh lemon juice sweetened with saccharine, 4 oz. of lime juice daily. He had also a liberal diet of fish and meat. The limbs were wrapped in cotton-wool and bandaged, and he was kept at rest; no drugs were administered. The effect was very

remarkable. His general condition and anaemia improved within a few days. His tongue became clear; there were no fresh haemorrhages, and in ten or fourteen days the effused blood was absorbed. The induration of fascia in the ham was absorbed more slowly, and the tenderness and oedema over the tibia was the last to vanish.

The character of the lesions, the history and rapid recovery on an antiscorbutic diet alone point conclusively to the disease being scurvy, and not purpura, a primary anaemia, or beri-beri. Diabetes does not appear to produce similar symptoms, and the addition of fresh vegetables alone would hardly produce such a rapid improvement. He is now in good health, has put on flesh, is taking an ordinary diabetic diet, and is passing no sugar; he is only able to take a very small quantity of ordinary bread without excreting sugar.

The case upholds the generally-accepted theory that absence of fresh vegetables alone is sufficient to produce scurvy, and that fresh-cooked meat alone has no antiscorbutic properties. No preserved or salted meat was used, all the beef was English and fresh, so that the theory of scurvy being produced by the presence of a toxic material formed by putrefaction, or due to slow ptomaine poisoning alone, finds no support from this case. The long time required to produce a definite scorbutic symptom (twenty-one months) is also worthy of note.

VACCINATION OF THE CORNEA.

BY

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ACCIDENTAL inoculation of some part of the conjunctiva with vaccine is occasionally reported, but we have been unable, in the literature at our command, to find a definite description of such an accident affecting the cornea. There is a short report in the *Lancet* (1906, i, p. 999) of a case of accidental vaccination of "the eye," in which it is stated that the resulting impairment of vision would have been worse but for the fact that the patient had been vaccinated two years before. Aron¹ has reported a case in which the cornea was so seriously affected that permanent opacity could not be avoided. In both of these cases the cornea may have been the site of inoculation, but whether that be so or not, the condition is so rare that it seems desirable to record the following case.

On February 27th, 1906, one of us (W. E. J.) was breaking a tube of Chaumier's lymph, when a fragment of the tube flew into his right eye. The eye was promptly washed out, and there was no further discomfort till March 4th, when there was some indistinctness of vision due to monocular diplopia. Vision, nevertheless, was $\frac{6}{6}$, and nothing abnormal appeared on examination. On the following day there was a small, circular area, the size of an ordinary pin-head, bare of epithelium in the lower outer quadrant of the cornea. For three days this area gradually increased in extent, till it occupied one-fourth of the total area of the cornea. There was no infiltration of the corneal substance, but considerable conjunctival injection. On March 9th chemosis and oedema of the lids became marked, and about this time and for several days the preauricular gland was enlarged and tender. The chemosis and oedema remained at their maximum till March 15th, and then during the following ten days slowly diminished, but during all this time the denuded area of the cornea remained bare of epithelium. Finally, on March 25th, the epithelium began to spread over the exposed corneal surface. Growth took place chiefly from above and below, very slightly from the sides of the patch. As compared with regeneration after injury, the rate of progress was slow, and it was March 30th ere the process was complete. Although no infiltration or loss of the corneal substance had been observed, the regenerated epithelium had a "matt" surface. Unfortunately, recovery was retarded by the occurrence of a secondary ulceration of the affected area. On April 20th, the spot became infiltrated, and an ulcer developed which showed no definite sign of healing for about three weeks, and is largely responsible for the impairment of vision. By May 10th, however, the ulcer was healing satisfactorily, and the patient was ultimately able to

resume work on June 13th, although the eye continued weak, and dark glasses had still to be worn for a time. During the acute stage the pupil never dilated fully with atropine, and there was a considerable amount of iritic pain, but there was no exudation or synechia. On June 29th vision was J. 14 (letters), on September 7th it had improved to $\frac{5}{6}$, on September 25th $\frac{5}{4}$ (one letter), and now (December 13th) it is $\frac{1}{8}$.

The accompanying symptoms were chiefly photophobia, epiphora, and pain. The epiphora was one of the earliest symptoms, and persisted to the end. It was continuous and very troublesome. The pain was twofold: (1) a superficial burning and smarting, which often kept the patient awake at night, even after healing had taken place; and (2) iritic pain, which had to be controlled by very free use of atropine.

As regards treatment there is not much to be said. The eye was kept clean throughout by means of frequent ablutions with warm boric lotion. Atropine was essential to control the iritic pain. At one time it produced a considerable rash, and duboisin was substituted, but proved ineffectual. On Dr. Glascott's suggestion the atropine was resumed in the form of ointment, and this proved less irritating. At an early stage argyrol was used as a possible means of destroying the vaccinal poison, and it was continued throughout the acute stage, but for no better reason than that when it was discontinued progress did not seem to be so favourable. The ulceration took place while the patient was at Colwyn Bay, and we wish to express our thanks to Dr. Nuttall for taking charge of the case during this period. Dr. Nuttall prescribed drops of atropine and quinine, which seemed to expedite healing. We are also indebted to Dr. C. E. Glascott, who kindly saw the patient several times.

REFERENCE.

¹ Abstract in *Ophthalmoscope*, 1904, p. 277.

MEMORANDA: MEDICAL, SURGICAL, OBSTETRICAL.

NEGLECTED CONSTIPATION AND PERICOLIC INFLAMMATION.

THE complaint of the patient in the following case, a woman, aged 55, was one of lassitude and constipation. Such constipation, ascribed by her to a change of climate, was in her case very unusual. As a rule, her bowels were very regular, but for some six weeks they had been opened only at intervals of three or four days, and this with difficulty and by the aid of purgatives and enemata.

Beyond this constipation and the lassitude nothing particular was noticed by her until the end of six weeks. Then she had pain in the left groin, extending from the anterior superior spine of the ilium downwards and inwards. Associated with it was a brawny, indurated swelling, with indefinite edges, in the left iliac region. Anteriorly this was apparently quite superficial, but posteriorly its limits and exact situation could not be determined. Superiorly it extended 2 or 3 in. above the superior spine.

Her temperature was raised to 103°, and her pulse to 120, and the tongue furred. She did not feel ill, and expressed surprise that so large a swelling should suddenly be noticed by her without more acute and premonitory symptoms. The inflammatory nature of the swelling was obvious, but the cause was somewhat indefinite, and the extent, course, and prognosis uncertain. Vaginal and rectal examination revealed nothing abnormal, nor could any disease of bone or neighbouring structure be discovered.

I treated the constipation vigorously, keeping her on a low diet, and applying fomentations locally.

For some days there was a particularly tender area in the centre of the swelling, but palpable suppuration did not occur, and in the course of a week her temperature began to drop, and she experienced considerable relief. Two or three weeks later the swelling subsided, but four or five passed before temperature and pulse became normal and the tongue clear. On more than one occasion she passed mucus but never blood; her health is now quite satisfactory.

REMARKS.—I think there is very little doubt that the whole of her trouble was caused by obstinate and prolonged constipation, which produced colitis, and inflammation of the surrounding areolar tissue. The case seems to me interesting as an apparent example of the condition described by Mr. D'Arcy Power of one of the sequelae of neglected constipation, its prolonged and