Metchnikoff, after pointing out that man, in common with mammals, appears to have acquired the convenience to be derived from a large bowel as a retainer of dejecta at a risk to health, and at the expense of longevity, goes on to propose that, in the interests of its owner, it should be removed by surgical operation. As it is not at all likely that such a step as this will be generally adopted in the immediate future, it behoves us to take care that it shall not be allowed to be habitually overcharged with dangerous material. Such a prolific originating centre must otherwise be productive of a great variety of bodily ills. My experience has convinced me that it has to do with most of the diseases in the Registrar-General's category, organic and functional.

When it becomes the seat of malignant disease (in 1895-6 out of 1,148 cases of cancer in the German hospitals, 89 per cent. affected the large bowel) the part it plays is recognized; or when reabsorption of the intestinal contents takes place on a large scale, there is not much doubt felt as to what is going on. But when the state of affairs in that region originates a general malaise, a catarrh of one or other portion of the mucous lining, a heightened temperature, or a great deal of the so-called influenza; when we fail, in spite of the exhortations of our friends, "to keep our hair on," or when it insists on changing its colour prematurely, all kinds of causes are suggested and sought after, when too frequently the true cause, the state of the large bowel and its flora, is lost sight of.

Each of the conditions just named is, of course, the direct outcome of its particular bacterium, and these various bacteria are not likely to be annihilated however considerable the manufacture and use of antiseptics may be. Safety can only be attained by taking the utmost care that suitable media are not furnished more largely than can be helped. Bacteriology leaves us in no doubt as to the completeness of the vicious circle. From this source the quality of the blood of the individual becomes impaired, and in consequence its circulation is impeded. Then the macrophages go forth to bring about the destruction of the higher elements of the organism, or, more properly speaking, to accomplish the removal of these elements after the vitality of the tissues has become impaired or destroyed in consequence of this failure in the blood supply just alluded to. It is in this way that arterio-sclerosis, which is accountable for more deaths in people over 50 than any other disease, is brought about.

MULTIPLE MYELOMA.

BY

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THE following case of multiple myeloma which recently came under our observation appears to us to be worthy of record on account of the rarity of the complaint. The disease occurred at a very advanced age, and although the symptoms and signs were very similar to those which have been described in other cases, no myelopathic albumosuria was present on the occasions when the urine was examined for this purpose. Possibly, however, it existed earlier in the course of the disease at a time when the precise nature of the complaint was not suspected, for during that period certain symptoms arose which might bear this interpretation.

The patient was a man, aged 72. He had always been of a particularly nervous disposition, subject to frequent nervous breakdowns necessitating prolonged rests and change of air. This point is mentioned because at first the vague pains from which he complained in his terminal illness were regarded as symptoms of his neurotic disposition, especially as no organic lesion could be discovered to account for them. A few years previously he is said to have suffered from some form of "sunstroke."

In September, 1905, he was ordered Fellows' syrup and strychnine, which had improved his health in previous attacks of depression, for at this time he was very much inclined to weep without any obvious cause. No

abnormal physical signs could be detected. On December 29th, 1905, he complained of pains in the sides of his chest. There were no signs of pleurisy or disease of the lungs, and the pains were attributed to intercostal rheumatism.

In February, 1906, he developed an attack of what was regarded as "cystitis," without any obvious cause. He was away from home the greater part of the time, and the attack subsided in about three weeks. The symptoms of this attack were painful and frequent micturition, with the passage of turbid urine. No further note could be obtained as to the condition of the urine at this time, but subsequent events threw much suspicion on the exact nature of this attack. It may have been a true cystitis, it may have been an attack of phosphaturia, or it may possibly have been an example of precipitation of the Bence Jones proteid within the bladder associated with painful and frequent micturition, for it is known that this proteid may be deposited in an insoluble form. In a few similar cases attacks of painful and frequent micturition have occurred in which the urine was acid, and the turbidity was shown to be due to the albumose, and not to phosphaturia in connexion with the bone disease. Whether or not it was so in this case, unfortunately, was not recorded.

During March, 1906, he suffered a good deal from dyspepsia, with coated tongue, but towards the end of the month he was able to get about and go out. On April 8th he had a febrile attack, with pains in his sides and limbs, which was regarded as influenza. A febrile state continued throughout the month, with intercostal pains so severe as to make movement in bed, to which he was confined, difficult, and indeed almost impossible without help; when at complete rest he had little or no pain.

Up to the end of June he continued to suffer from a good deal of pain, which was variable in position, and to account for which no organic disease could be detected. At this time he was massaged daily with beneficial results, in the opinion of all connected with him. Lateral curvature of the dorsal spine was noticed, but it was said by his relatives to have been of very long duration. At this time, while under the care of a nurse and practically in the absence of relatives, he seemed to improve, putting on weight slightly. On the arrival of his family at the end of July he again lost ground; he became very feeble; when rising from a chair would climb up his legs (in the same way as a patient suffering from pseudo-hypertrophic paralysis); he could not feed himself, and finally had such difficulty in masticating solids that he would keep food in his mouth five minutes or more, and then perhaps have to spit it out. He complained of much pain in his sides and legs, and became extremely emaciated. He very much objected to being moved about. Towards the end of August he was kept in bed, his pulse became unequal, and he was much worried by a cough.

In the middle of September slight enlargements were noted at the costo chondral junctions of the upper three ribs. It was noticed also that the ribs on the right side were less resistant to pressure than those on the left, and on further examination one of them was felt to snap under the examining fingers, without, however, causing apparently any extra pain. The three ribs below the angle of the right scapula were slightly, but distinctly, enlarged and very tender on pressure. The tips of the fingers at this spot could not be inserted between the individual ribs as on the other side. In the spinal column two slight lateral curvatures were noted, while in the lower dorsal region there was a distinct prominence with a considerable amount of rigidity, but as all movements were carried out with considerable pain and difficulty it was quite impossible accurately to determine its amount. There was no enlargement or tenderness of the bones of the arms or legs. No sign of any other organic disease could be detected in any of the viscera. There was no glandular enlargement. The disease, therefore, appeared to be limited to the vertebrae, ribs, and costal cartilages, and since caries, osteomalacia, secondary carcinomatous deposits, spondylitis deformans, osteitis deformans, all appeared to be out of court, the diagnosis of probable multiple myeloma was made. The urine was therefore carefully examined, but no albumose, albumen, or sugar was found. A differential count of the white cells of the blood yielded:

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.

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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