

General lymphadenomatosis of bones, one form of 'multiple myeloma' / by F. Parkes Weber.

Contributors

Weber, Frederick Parkes, 1863-1962.
Royal College of Surgeons of England

Publication/Creation

Edinburgh : Young J. Pentland, 1898.

Persistent URL

<https://wellcomecollection.org/works/eb4c2vd5>

Provider

Royal College of Surgeons

License and attribution

This material has been provided by This material has been provided by The Royal College of Surgeons of England. The original may be consulted at The Royal College of Surgeons of England. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.

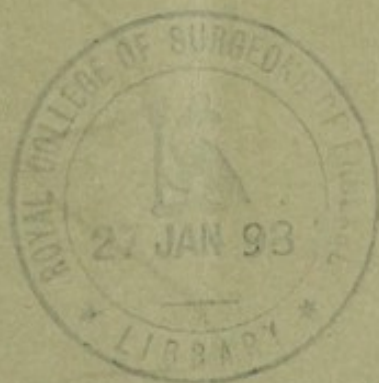


Wellcome Collection
183 Euston Road
London NW1 2BE UK
T +44 (0)20 7611 8722
E library@wellcomecollection.org
<https://wellcomecollection.org>

b. 7.

from the author.

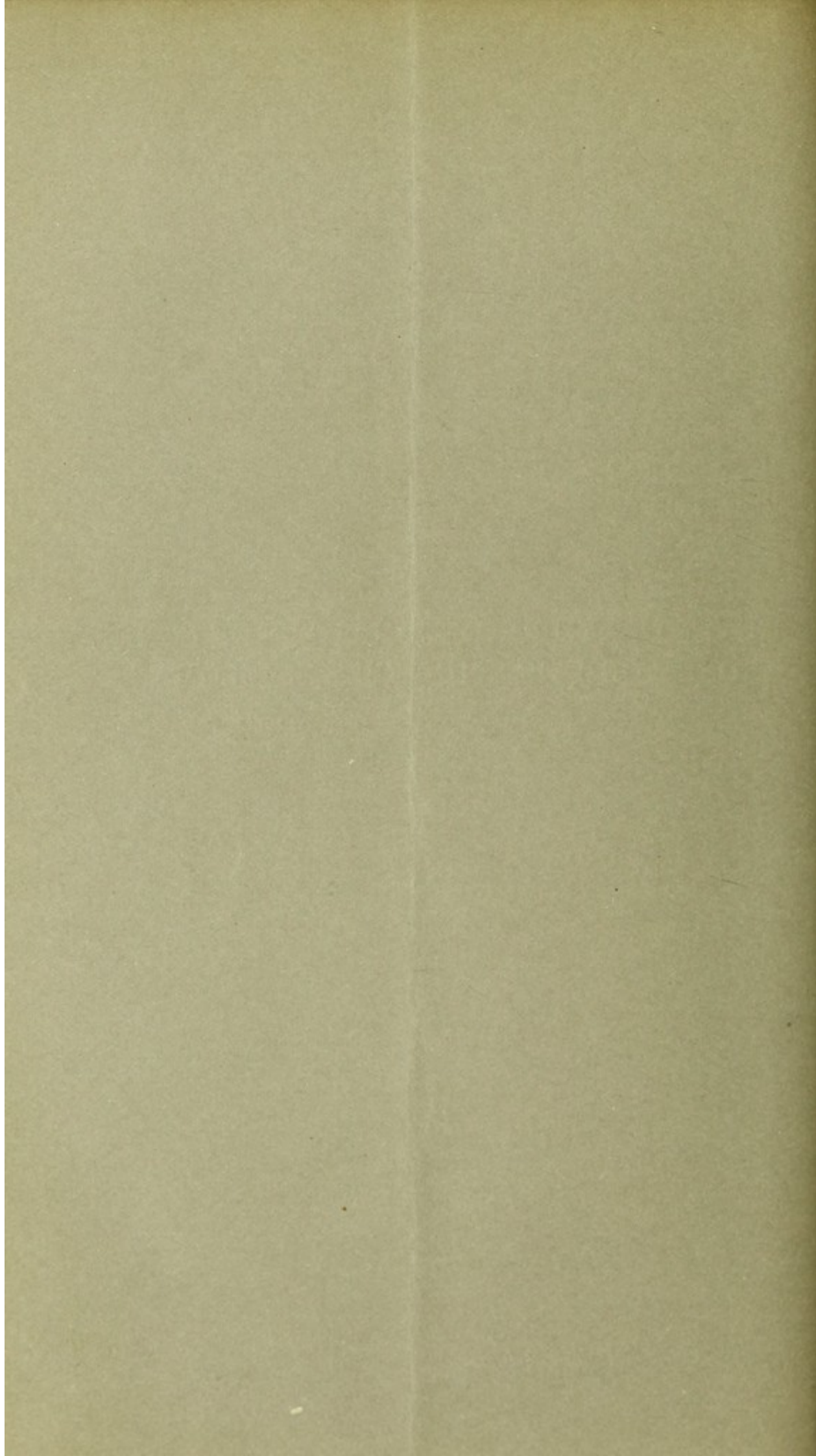
10.

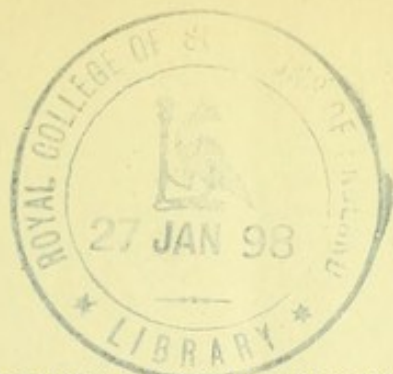


GENERAL LYMPHADENOMATOSIS OF BONES,
ONE FORM OF "MULTIPLE MYELOMA."

By F. PARKES WEBER, M.D., M.R.C.P.

*Reprinted from THE JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Edinburgh
and London, Young J. Pentland, January 1898.*





GENERAL LYMPHADENOMATOSIS OF BONES, ONE FORM OF "MULTIPLE MYELOMA."¹

By F. PARKES WEBER, M.D., M.R.C.P., *Physician, German Hospital, Dalston, London.*

(PLATE IX.)

I WILL first give brief clinical notes of this unusual case, and then describe what was found at the necropsy.

The patient, E. P., æt. 61, was an Austrian, who had been long resident in Mexico. He was admitted to the German Hospital on 17th October 1896, complaining of various pains, resembling those often described in chronic rheumatism. There was considerable kyphosis, and this was apparently progressive. He walked very stiffly and carefully with the aid of a stick. In general appearance he was rather emaciated, and looked more like a man of 80 than of 61. No organic disease could be found in the viscera. His urine contained no albumin. The symptoms he complained of were apparently of comparatively recent date.

Various medicines were tried, including glycerophosphates, iodide of iron, and arsenic, but they seemed to have no effect whatever. Patient had a fair appetite, and was free from fever; yet he seemed to get weaker and to complain more of the pains. In particular there were bilateral pains in the sides of the abdomen; these were usually worse when he stood up. The pains, and the increasing lumbo-dorsal kyphosis, made one think of the possibility of malignant tumour of the spinal column, or of a diffuse caries in the front part of several vertebral centra, or of spondylitis deformans. The whole spinal column was kept rigidly fixed in one position. Slight œdema over the lower part of the spine and over one leg was noticed on different occasions.

In December there was a little muco-purulent expectoration. The weakness increased, and the patient developed an asthenic type of pneumonia. He became half unconscious some time before his death, which took place on 18th January 1897.

NECROPSY.—*The skeleton.*—All the ribs, the whole vertebral column, the clavicles, the sternum, and the skull were examined, and were all found to be the site of a very vascular pulpy neoplasm, growing from the interior of the bone outwards. The ribs were all converted into delicate tubes formed of periosteum, with only a thin imperfect shell of bone; they were stuffed full of the new growth. The slightest pressure sufficed to break them in any part; many spontaneous fractures had occurred during life, and had already thoroughly united by callus. In some places the new growth had distended the periosteum and bony shell, so as to form a nodular enlargement on the rib. Here and there the osseous tissue had been completely absorbed, so that the new growth lay directly under the periosteum. A chance blow on the sternum during life would certainly have forced in the whole front wall of the chest. The ragged appearance of the properly prepared dried ribs is very striking. In one of the

¹ Read before the Pathological Society, 4th May 1897.

lower dorsal vertebræ a bluish substance could be seen under the periosteum, and on cutting into it a thick dark fluid flowed out, leaving a cavity crossed only by a few fleshy shreds. The sternum and the vertebral column are about equally affected. The clavicles have suffered somewhat less. A certain amount of new growth is present in the diploë of the skull, and the black spots seen below both tables of the calvarium are doubtless due to bone absorption from nodules of growth in the diploë.

Microscopic examination showed the new growth to consist of small mononuclear round cells (Plate IX. Fig. 1), with none or scarcely any substance between them. Interspersed amongst the cells are small blood vessels (*a*), with swollen looking, almost hyaline, walls. Spicules of bone taken from the new growth do not show any clear margin, such as is well seen in a spicule from a case of osteomalacia shown me by Mr. Shattock, the bone in the latter specimen being decalcified at the margins as a preliminary step towards absorption. In the present case, the bone seems to be absorbed by the new growth without undergoing any previous process of decalcification. Specimens of the new growth from the vertebræ, the ribs, and the diploë of the skull, all presented the same characters. Behind the right clavicle were some enlarged *lymph glands*, which the microscope (see Plate IX. Fig. 2) showed to be the site of a similar but less vascular growth. No growth was discovered in other lymph glands or elsewhere in the body.

Nothing abnormal was discovered in the *brain*.

In the *lungs* there was greyish consolidation at both bases. In some parts of the consolidated lung no boundaries of the alveoli could be microscopically distinguished (Plate IX. Fig. 3); the tissue in these parts seems as if it had been boiled; it appears to consist of a number of small cells embedded in a homogeneous, almost hyaline, ground substance, with here and there collections of red blood corpuscles, either in the vessels or extravasated. The outer portions of the vessel walls have likewise become unnaturally hyaline, as if they, like the walls of the alveoli, were gradually becoming dissolved in the homogeneous material of the exudation.

The *heart* presented nothing unnatural. There were several atheromatous ulcers in the middle portion of the *aorta*.

The *liver* appeared, macroscopically and microscopically, to be normal.

The *spleen* was slightly enlarged and soft, and showed considerable chronic thickening of the capsule (perisplenitis).

The *stomach* was abnormally dilated.

The *kidneys*.—One was (apparently congenitally) larger than the other. They showed a moderate amount of chronic interstitial change. In one of the kidneys two white spots were noticed in the cortex, just below the capsule. Microscopic sections (Plate IX. Fig. 4) were made through these spots, and the razor grated slightly in passing through them, as if they contained some gritty material. Under the microscope this was seen to be due to the presence of spherules¹ (microscopic calculi) embedded in the white spots. The spherules stain deeply with hæmatoxylin; concentric markings can be distinctly made out in some of them. In what structures of the kidney the spherules are lying is not easy to make out; one or two of them seem to be in the convoluted tubules, but most of them are in portions of the kidney where the epithelial cells have degenerated, and where some fibroid change has taken place (Plate IX. Fig. 4), so that it cannot now be determined whether they were first deposited in normal renal tubules, which degenerated afterwards, or in already degenerated fibrotic tissue.

Mr. Shattock has kindly made a chemical examination of the spherules

¹ I have on several occasions seen similar spherules, when examining the inspissated contents of small cysts, often found at necropsies in the renal cortex. These, however, showed a certain amount of ray-like, as well as concentric markings. They were usually easily broken up by pressure on the coverslip.

obtained from unstained sections. They can be seen to dissolve readily in dilute hydrochloric acid, without effervescence, when the section is observed beneath the microscope without a coverslip. Having, with scissors, cut out the areas containing the spherules from several sections, he placed them together in a watch glass, and added dilute nitric acid. To the solution thus obtained he added (after removing the tissue itself) a solution of nitromolybdate of ammonium, which threw down a typical canary-yellow precipitate, proving positively that the tissue examined contained phosphates (earthy phosphates). In order to control the experiment, he treated similarly the portions of the sections which contained no spherules, and got no trace of yellow precipitate, thus showing that the phosphates were due to the spherules.

An abnormally large amount of phosphates (derived from the absorption of so much osseous tissue) must have passed through the kidneys. It is probable, however, that even in this case the minute calculi have only been deposited in portions of the kidney whose vitality was lessened by a fibrotic change, just as calcareous salts are precipitated in tuberculous lung tissue, etc., and gouty deposits are accumulated in injured joints more readily than in sound ones.

There is some difficulty in finding a suitable name for the affection just described. The disease consisted in an almost simultaneous growth of the lymphadenoid tissue, in most, if not all, parts of the bony skeleton, for although the long bones and the scapulæ and innominate bones were not examined, it is unlikely that they entirely escaped, when even the diploë of the calvarium was beginning to be affected. It is because there is no evidence of any primary tumour or tumours in the present case that I prefer the word lymphadenomatosis, as employed by W. G. Spencer ⁽¹⁾, to the ordinary and more simple word, lymphadenoma or lymphoma. For the same reason I speak of the osseous disease as being "general" and not "generalised." There were no metastases from the bones to the other parts of the body except to the cervical lymph glands, but in the latter position the growth was in the same kind of tissue (lymphatic), though not in the bones; it may therefore not have been a metastasis, in the proper sense of the word. It is because of the (at least comparative) absence of metastasis, and also absence of infiltration of the parts around the bones, in spite of the apparently rapid growth of the newly-formed tissue, that I think the terms lymphosarcoma and sarcoma are unsuitable in reference to the case. Lymphosarcomatosis, or sarcomatosis, are better terms, but not so satisfactory as lymphadenomatosis. The expression "multiple myeloma" has been used by various writers in reference to somewhat similar cases, but this term, although undoubtedly of clinical convenience, has the objection of indicating merely the position of the neoplastic growth, and not the nature of the newly-formed tissue. The growth in different cases published as "multiple myeloma" has admittedly not always presented the same histological characters.

It is unfortunate that the blood was not examined in the present instance, for it might be suggested that the case was one of myelogenic leukæmia, or even of pernicious anæmia with reaction in the bone marrow. The man's appearance during life, and the colour of his blood after death, did not give one the impression of much leukæmia, and no

leukæmic affection of the viscera was found. I do not believe that, if a certain degree of leukæmia had been found, it would be necessary to alter the term I have employed for the disease. The man certainly did not appear to be suffering from any form of pernicious anæmia.

It is not likely that the lymphadenoid growth in the present case was of the nature of a reaction to anæmia, or to some irritant substance in the circulation; though the latter is a possible explanation of some cases of osteomalacia, if we can accept the alleged cure of a case of osteomalacia by oöphorectomy⁽²⁾. I should not, however, be surprised if some connection existed between cases of osteomalacia, though usually called an "inflammatory" disease, and cases of general growth of tumour in the bones like the present.

The clinical classification of different forms of multiple and diffuse growths in the bones (especially in the vertebral column, ribs, and sternum), under the heading "multiple myeloma," has certainly conveniences. These cases can often not be distinguished clinically from osteomalacia, but whereas the latter disease chiefly attacks women, and generally at the puerperal period, multiple myeloma has generally appeared in men and in men past middle life. In contrast to the ordinary rule in osteomalacia the pelvis is generally not particularly affected in multiple myeloma. Formerly, cases of multiple myeloma were probably classed as osteomalacia of a cancerous nature⁽¹⁶⁾.

The first symptoms are various aches and pains, such as are not unfrequently complained of in chronic rheumatism. At least in one case⁽⁶⁾, the sufferer was at first suspected of malingering. As the disease progresses, emaciation and debility are noted. Progressive kyphosis is often a prominent symptom. Pains over part of the spinal column, or bilateral pains over the trunk, are usually present, and there is often marked tenderness to pressure over the vertebræ, ribs, and sternum. Variable or transient œdema, as in my case and Hammer's case⁽⁴⁾, may be present over part of the spine or other affected bones. Spontaneous fractures of the ribs occur, and may, as in my case, readily unite. The patients move very stiffly, and are very careful to avoid all jar, making use of any support they can get. In some cases actual tumours were observed^(5, 13, 15) during life. Not unfrequently the cervical or other lymph glands are enlarged^(4, 14).

An intermittent form of fever has been noted in some cases^(4, 6, 14). There is usually great anæmia^(3, 14). Sometimes there is albuminuria^(7, 8). Albumosuria may be present in cases of multiple myeloma^(9, 10), as it may be also in osteomalacia^(11, 12). Pneumonia (broncho-pneumonia) in one or, as in my case, in both lungs was found post-mortem in nearly all the published cases. The peculiar microscopic appearance of part of the affected lung in the present case has been already mentioned. The frequency of pneumonia may be attributed to the progressive emaciation favouring its development, or there may be some more intimate, as yet unexplained,

connection between the two diseases. The duration of cases of multiple myeloma (*i.e.* from the time when the symptoms were first complained of) has usually not been very long, but in Kahler's case (¹⁰) the illness lasted a little over eight years. Kahler's patient was, however, a medical man, whose symptoms would naturally be noted at an early stage of the affection.

Histologically, the growth in different cases of multiple myeloma presents considerable differences. Sometimes it consists of small round cells, as in the present case, sometimes of large round cells (with possibly spindle cells). The former group comprises the cases of lymphadenomatosis, such as the present case. In Seegelken's case (⁹) there were islets of cartilage present in the tumours, and he calls the growth a chondrosarcoma. In Waldstein's case (¹⁸) part of the lymphadenoid growth contained a greenish pigment, after which such growths have been termed "chloroma" (¹⁹). Amongst the large-cell cases, Markwald (⁶) calls his one, "multiple intravascular endothelioma." In a case recorded by Mr. Butlin (¹⁷), it seems not improbable that a kind of general lymphadenomatosis of bones accompanied definite myeloid sarcomata (with giant cells) of the lower jaw and ribs.

The anatomical pathological features of all these cases of multiple myeloma show that for the future the diagnosis of such cases, as well as of cases of osteomalacia, will be greatly facilitated by the employment of Röntgen's rays. In my case, for instance, the rays would have passed through the patient's chest almost as if there were no bones there at all.

In conclusion, I must especially thank Mr. Shattock for his kindness in examining the microscopic calculi of the kidney, and in advising me on other pathological points connected with the case.

BIBLIOGRAPHY.

1. W. G. SPENCER, "Introduction to a Discussion on Lymphadenoma and its Relation to other Morbid Growths" in the Section of Pathology at the Annual Meeting of the British Medical Association, London, 1895, *Brit. Med. Journ.*, London, Jan. 18, 1896.
2. S. FLATAU, "Ein Fall schwerer, durch Castration geheilter Osteomalacie," *München, med. Wchnschr.*, Feb. 16, 1897, S. 175.
3. P. GRAWITZ, "Maligne Osteomyelitis und sarkomatöse Erkrankungen des Knochensystems als Befunde bei Fällen von perniciöser Anämie." *Virchow's Archiv*, 1879, Bd. lxxvi. S. 353.
4. HAMMER, "Primäre sarkomatöse Ostitis mit chronischem Ruckfallsfieber," *Virchow's Archiv*, 1894, Bd. cxxxvii. S. 280.
5. J. VON RUSTIZKY, . . . "Multiples Myelom," *Deutsche Ztschr. f. Chir.*, Leipzig, 1873, Bd. iii. S. 162.

6. MARKWALD, "Ein Fall von multiplen intravasculärem Endotheliom in den gesammten Knochen des Skelets," *Virchow's Archiv*, 1895, Bd. cxli. S. 128.
7. F. W. ZAHN, "Ueber das multiple Myelom," *Deutsche Ztschr. f. Chir.*, Leipzig, 1885, Bd. xxii. S. 1.
8. J. W. RUNEBERG, "Ein Fall von medullärer Pseudoleukämie," *Deutsches Arch. f. klin. Med.*, Leipzig, 1883, S. 629.
9. SEEGELKEN, "Ueber multiples Myelom und Stoffwechsel-Untersuchungen bei demselben," *Deutsches Arch. f. klin. Med.*, Leipzig, Bd. lviii. S. 276. This paper gives references to most other cases.
10. OTTO KAHLER, "Zur Symptomatologie des multiplen Myeloms," *Wien. med. Presse*, 1889, Bd. xxx. S. 210 and S. 254.
11. H. BENGE JONES, "On a New Substance occurring in the Urine of a Patient with Mollities Ossium," *Phil. Trans.*, London, 1848, p. 55.
12. A. RASCHKES, "Ein Fall von seniler Osteomalacie mit Albumosurie," *Prag. med. Wchnschr.*, 1894, No. 51, S. 649.
13. J. B. HERRICK AND L. HEKTOEN, "Myeloma: Report of a Case," *Med. News*, Phila., 1894, vol. lxxv. p. 239.
14. H. NOTHNAGEL, "Ueber eine eigenthümliche perniciöse Knochenkrankung, Lymphadenia Ossium," *Festschr. Rudolf Virchow*, Berlin, 1891, Bd. ii. S. 155.
15. J. COATS, "A Case of Multiple Sarcoma of Bone," *Glasgow Med. Journ.*, 1891, vol. xxxvi. p. 420.
16. HERMANN WEBER, *Trans. Path. Soc. London*, 1866, vol. xviii. p. 206.
17. H. T. BUTLIN, *Ibid.*, 1879, vol. xxxi. p. 277.
18. L. WALDSTEIN, *Virchow's Archiv*, 1883, Bd. xci. S. 12.
19. E. KLEBS, "Allgemeine Pathologie," 1889, Bd. ii. S. 212.

DESCRIPTION OF PLATE IX.

- FIG. 1 represents a portion of the growth from the body of one of the affected vertebrae ($\times 300$.) It is seen to consist of small mononuclear round cells with none, or scarcely any, tissue between them. There are several blood vessels (*a*) represented, with swollen, almost hyaline, walls.
- FIG. 2 represents a portion of one of the enlarged cervical lymph glands ($\times 300$). It consists, like the tumour in the first figure, of small round cells. An apparently imperfectly formed blood vessel, with almost hyaline walls, is represented at *a*, and part of an ordinary trabecula at *b*.
- FIG. 3 ($\times 150$) represents part of a section through one of the white spots in the cortex of the kidney just below the capsule. The concentric markings of the microscopic calculi (stained with hæmatoxylin) are well seen here. The calculi are situated in a fibrotic area where the secreting cells have degenerated.
- FIG. 4 represents a portion of the inflamed lung, where most of the fibrous tissue of the alveolar walls seems to have "melted down" in the hyaline homogeneous material of the exudation. This material fills in the space between the exuded cells. In the centre of the figure is an irregularly-shaped space, partly filled by red blood corpuscles; a trace of fibrous structure can be observed in its walls.

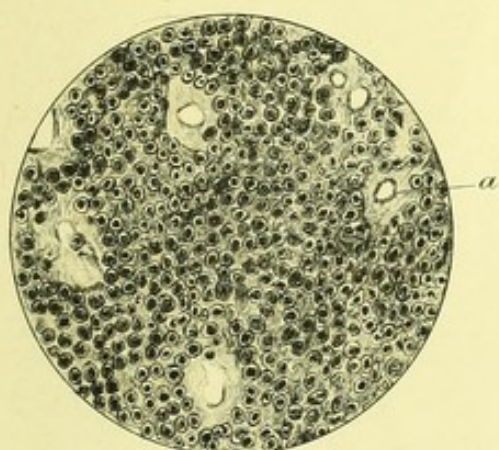


Fig. 1.

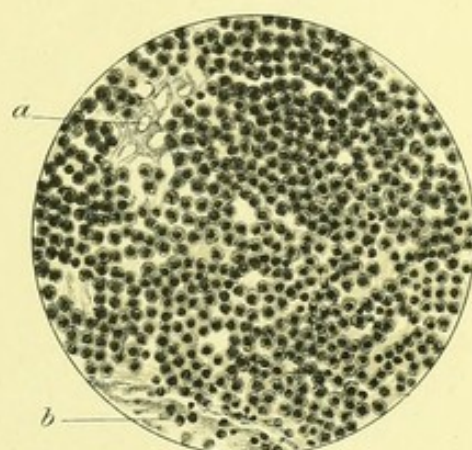


Fig. 2.



Fig. 3.



Fig. 4.

