ILLUSTRATION of ENCYSTED TUBERCLE, INFILTRATING TUBERCLE - INTERMEDIATE TUBERCLE and HYPERTROPHIC TUBERCLE of BONE.
ILLUSTRATION No. 44.

EARLY ENCRYPTED TUBERCLE OF BONE.

The interior of the focus is translucent, but scattered throughout the translucent portion there are areas of caseation. Around the central area there is a ring of semi-transparent looking marrow. The surrounding marrow is congested.
ILLUSTRATION No. 45.

ENCYSTED TUBERCLE OF BONE.

There is a central patch of greyish white appearance – somewhat shrunk in preparation: a more peripheral zone which is clearer and almost pallucid: and finally a band of pinkish white colour, somewhat sharply defined from the central zone but merging imperceptibly at the periphery into the surrounding marrow.
ILLUSTRATION No. 46.

ENCESTED TUBERCLE OF BONE.

The centre is occupied by caseous debris: the gelatinous-looking material has entirely disappeared: the central area is shut off by a limiting zone of pinkish fibrous tissue. The surrounding marrow in these final stages becomes degenerated and fatty because localization is then complete and further resistance is not required. Note the absence of new periosteal bone.
ILLUSTRATION No. 47.

MICROSCOPIC APPEARANCE OF THE GRANULATION TISSUE IN AN ENCYSTED TUBERCLE.

There is a groundwork of branching connective tissue cells, many of them myxomatous and fibrillar. There are a number of different varieties of round cells. There is very considerable vascularity and it is important to notice that the blood vessels are undergoing some degree of thickening. To the left of the field there are two points in which caseation is beginning to appear.

X 300 diams.
ILLUSTRATION No. 48.

AN EARLY DEVELOPING ENCYSTED TUBERCLE.

The focus is developing in the centre of the healthy marrow. Note its curious reticulated appearance: also the fact that all bone in the circumference of the focus has been absorbed.

X 25 diams.
THE DEVELOPMENT OF THE LIMITING BAND IN ENCYSTED TUBERCLE.

To the right of the field there is a quantity of Tuberculous granulation tissue: To the left of the field there are Bone lamellae and Bone marrow. In the centre of the field a layer of fibrous tissue is beginning to be deposited: its fibres have been derived in part from the surrounding marrow and in part from the Perivascular tissues of the diseased granulation tissue. Note the unusual vascularity of the developing zone.

X 50 diams.
THE LIMITING WALL OF AN ENCRYPTED TUBERCLE.

To the left of the field there may be seen the tuberculous tissue: shutting it off from the surrounding parts there is a zone of fibrous tissue of considerable thickness. It is instructive to note the absorption of Bone which is proceeding in order to make room for the deposit of the fibrous Barrier.

X 60 diams.
THE FINAL STAGE IN THE LIMITATION OF AN ENCYSTED TUBERCLE.

To the right of the field there is a portion of diseased tissue: lying immediately beside it there is a broad band of dense fibrous tissue: Upon the outer surface of the fibrous band a quantity of new Bone is being deposited, and the osteoblasts may be seen at work.

The deposit of new Bone in the final stage in the process of localization of the disease:

X 60 diams.
ILLUSTRATION NO. 52.

MYXOMATOUS THICKENING OF THE PERIOSTEUM.

In the development of an encysted tubercle it is the exception to find a deposit of subperiosteal Bone. The Periosteum reacts, however, by undergoing a myxomatous degeneration of its deeper cells, with some resulting thickening.

X 300 diams.
ILLUSTRATION No. 53.

ENCYSTED TUBERCLE OF BONE.

This illustration has been taken from a section through the wall of an encysted tubercle: it shews well the different zones.

In the lower right-hand corner there is the diffuse structureless appearance of caseation: around the caseous patch there is a layer of granulation tissue - in it there are darkly staining points which denote foci of commencing caseation. Immediately around the granulation tissue there is a light pink area of fibrous tissue. It is best seen about the centre but it is being deposited all around. The adjacent bone is sclerosed in places. The marrow is practically healthy.
ILLUSTRATION NO. 54.

DEVELOPMENT OF AN ENCYSTED TUBERCLE.

In the lower part of the field the disease is entirely shut off by a band of dense fibrous tissue.

X 33 diams.
ILLUSTRATION No. 55.

ENCYSTED TUBERCLE OF BONE.

In the interior of the Bone there is a small focus of tubercle: it is entirely shut off by a limiting fibrous barrier: - Note the absence of a Periostial Reaction.

X 8 diams.
ILLUSTRATION NO. 56.

THE EDGE OF AN ENCystED TUBERCLE.

In the upper part of the field there is a quantity of caseous débris, and shutting it off from the rest of the bone there is a firm barrier of dense fibrous tissue.

X 33 diams.
ILLUSTRATION NO. 57.

AN INFILTRATING TUBERCLE OF THE TIBIA.

In the centre of the Bone there is an irregular patch of a dull yellow colour, and standing out from it there is an indefinite outline of the bony framework - around the central zone there is a ring of pearl grey tissue: it is an early stage of development of the central yellow patch, and the granulation tissue before it has undergone caseation: it is extending and infiltrating along the Bone framework. Around the zone the marrow is somewhat congested.

"La Lie de Vin".
ILLUSTRATION No. 58.

EARLY DEVELOPMENT OF AN ACUTE INFILTRATING TUBERCLE.

Several foci composed entirely of epitheliod cells have developed in the centre of the marrow - around these foci there is a dense accumulation of round cells. Note that there is no absorption of the neighbouring lamellae, and that the surrounding marrow shows no fibrous change.

X 60 diams.
ILLUSTRATION NO. 59.

ACUTE INFILTRATING TUBERCLE.

The disease is extending rapidly through the marrow; there is practically no resistive change in the surrounding marrow. The invaded bone is converted into sequestra.

X 23 diams.
ILLUSTRATION No. 60.

AN EARLY INFILTRATING TUBERCLE.

Several epithelioid points have developed in the interior of the marrow: they are almost purely epithelioid in character and around them there is a considerable accumulation of round cells.

X 110 diams.
ILLUSTRATION No. 61.

ACUTE INFILTRATING TUBERCLE INVOLVING THE SCAPHOID.

With the exception of a shell of bone around the periphery practically the entire extent of the bone has become replaced by tuberculous tissue. The bone is in fact a large sequestrum.

X 6 diams.
ILLUSTRATION NO. 62.

ACUTE INFILTRATING TUBERCLE.

The section is one through the centre of an acute infiltrating tubercle; lying amongst the tuberculous material there are numerous sequestra of varying size.

X 48 diams.
ILLUSTRATION No. 63.

ACUTE INFILTRATING TUBERCLE.

A band of tuberculous tissue is extending across the field: it contains a certain amount of sequestra. All around the tuberculous zone there is healthy bone marrow. No caseation has yet appeared in the tuberculous tissue. It is the condition of "l'infiltration grise". X 8 diams.
ILLUSTRATION No. 64.

ACUTE INFILTRATING TUBERCLE OF THE HUMERUS.

The disease is rapidly extending along the centre of the shaft of the bone. At the periphery of the bone the periosteum has deposited a quantity of new bone.

X 7 diams.
ACUTE INFILTRATING TUBERCLE OF THE HUMERUS.
ILLUSTRATION No. 65.

INFLTRATING TUBERCLE.

Spreading throughout the bone, involving the marrow spaces and destroying the lamellae there is an acute infiltrating tubercle. The surrounding marrow is tending to become myxomatous.

X 3 diams.
ILLUSTRATION NO. 66.

ACUTE INFILTRATING TUBERCLE.

The Bone Lamellae form a single large Sequestrum; the outer lamellar space is occupied with tuberculous disease.

X 33 diams.
ILLUSTRATION No. 67.

ACUTE INFILTRATING TUBERCLE.

The tuberculous disease is rapidly spreading throughout the bone, and the lamellae have become converted into sequestra. Note the irregular notched outline of the bone, the different densities of staining and the apparent increase in size of the bone lacunae.

X 38 diams.
ILLUSTRATION No. 63.

INFLTRATING TUBERCLE.

To the left of the field the edge of the infiltrating tubercle is seen; about the centre of the area a separate patch of disease is visible. The neighbouring marrow is myxomatous.

X 3 diams.
ILLUSTRATION NO. 69.

INTERMEDIATE TUBERCLE.

The tubercle was originally infiltrating in character, but it later became encysted. In its interior there are seen to be several sequestra of varying size.

X 48 diams.
ILLUSTRATION NO. 70.

MILIARY TUBERCLES IN THE MARROW.

The Marrow is becoming fibrous in character, and scattered throughout it there are a number of isolated tuberculous follicles.

X 33 diams.
ILLUSTRATION NO. 71.

HYPERTROPHIC BONE TUBERCLE.

The upper two-thirds of the Tibia; showing the uniform fusiform enlargement.
ILLUSTRATION NO. 72.

HYPERTROPHIC BONE TUBERCLE.

A transverse section of the Tibia, showing the sclerosed Bone; a central Sequestrum and the intermediate area from which the Bone has been absorbed.
This section shows the earliest stage in the development of the disease: those of the divisions of the nutrient vessel are seen: and around each there is beginning to appear a certain amount of peri-vascular effusion: the coats of the vessels are slightly thickened. There is no round cell infiltration such as one finds in a specific effusion.

X 55 diams.
ILLUSTRATION No. 74.

EARLY CHANGES IN THE MARROW IN HYPER-TROPHIC BONE TUBERCLE.

In addition to the Perivascular effusion which I have already illustrated, the marrow becomes altered: a quantity of loose myxomatous tissue makes its appearance between the individual fat cells.

X 30 diams.
ILLUSTRATION No. 75.

MARROW CHANGES IN HYPERTROPHIC BONE TUBERCLE.

In the centre of the bone and somewhat to the right of the middle line the thickened nutrient vessels are visible.

The marrow in the medulla of the bone is altered, in a portion of it a quantity of fibro-myxomatous tissue is being deposited.

X 5 diams.
ILLUSTRATION NO. 76.

THE DEVELOPMENT OF A SCLEROSED SEQUESTRUM.

A central area of the bone has been absorbed, and upon the lines of the old lamellae fresh bone is being deposited.

X 13 diams.
ILLUSTRATION NO. 77.

HYPERTROPHIC BONE TUBERCLE.

Transverse section of Tibia; the Bone is sclerosed; the new Bone being derived from the Endosteum. The central Marrow is undergoing a preliminary fibrosis, and there is an effusion around the nutrient vessels.

X 5 diams.
ILLUSTRATION No. 78.

HYPERTRPHIC BONE TUBERCLE.

This, a transverse section through the tibia, shews a bone which is considerably sclerosed owing to a deposit of bone by the endosteum. In the centre of the section the nutrient vessel is seen to be in a condition of endosteitis, and surrounding the vessel there is a zone of granulation tissue.

X 4½ diams.
ILLUSTRATION NO. 79.

HYPERTROPHIC BONE TUBERCLE SHOWING THE DEVELOPMENT OF A CENTRAL SEQUESTRUM.

A portion in the interior of the bone has become replaced by granulation tissue - running through it there are visible the outlines of the original lamellae: upon these outlines new bone is beginning to be deposited, and by a process of alternate absorption and deposit a dense sequestrum is formed.

X 24 diams.
HYPERTROPHIC BONE TUBERCLE.

A transverse section through the centre of the Bone. In the interior the nutrient vessels are seen to be considerably thickened and surrounded by a zone of granulation tissue: lying immediately above the vessels there is a space in which a sclerosed sequestrum is beginning to be deposited: the sequestrum is in places in touch with the surrounding Bone.

$X \ 4\frac{1}{2}$ diams.
ILLUSTRATION NO. 81.

HYPERTROPHIC BONE TUBERCLE.

The entire Bone is hyperostosed; the nutrient vessels are thickened and there is a sclerosed Sequestrum developing in the centre.

X 5 diams.
ILLUSTRATION No. 82.

HYPERTROPHIC BONE TUBERCLE.

The general outline of the Bone is hyperostoseal but in the interior a portion has undergone absorption and replacement by a gelatinous fibro-myxomatous material—about the centre of the Bone a number of small tuberculous follicles may lie.

Notice: Around the periphery of the Bone there is almost a complete ring of new sub-periosteal Bone.

X 4½ diams.
ILLUSTRATION NO. 83.

HYPERTROPHIC BONE TUBERCLE.

A late stage of the disease which sometimes occurs; the interior of the Bone is occupied by caseous débris; there is a surrounding ring, the remains of the hypertrophied Bone. In one corner the nutrient vessel is seen to be thickened.

X 5 diams.