

Röntgen-ray skiagraphs : tubercular knees, club-foot, glass in finger, deformed hand, knock-knees, etc. / by DeForest Willard.

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Publication/Creation

[Philadelphia] : [publisher not identified], 1896.

Persistent URL

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RÖNTGEN-RAY SKIAGRAPHS.

TUBERCULAR KNEES; CLUB-FOOT; GLASS IN FINGER;
DEFORMED HAND; KNOCK-KNEES, ETC.

BY

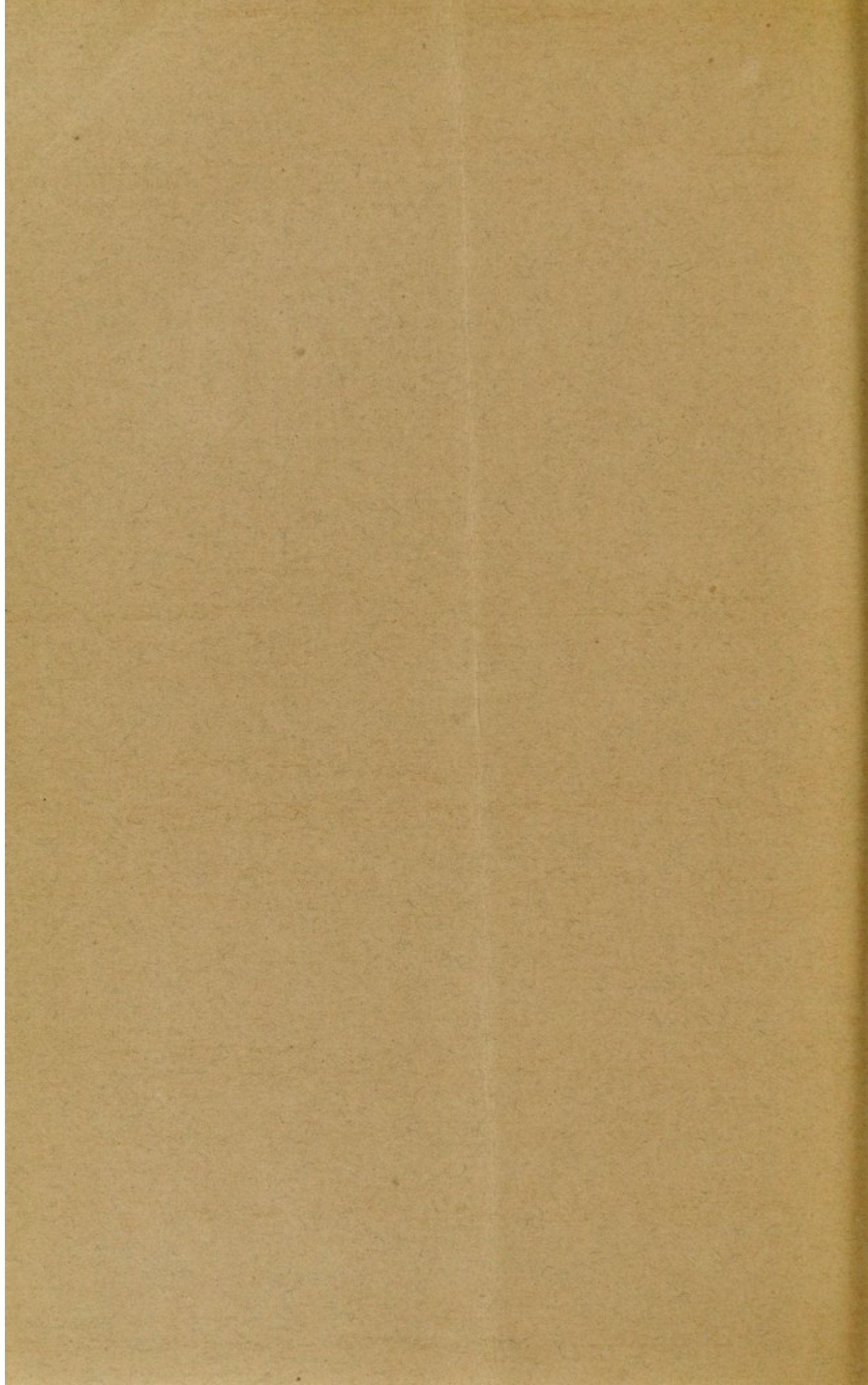
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*Reprinted from the
Transactions of the American Surgical Association,
1896.*



RÖNTGEN-RAY SKIAGRAPHS.

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BY DE FOREST WILLARD, M.D.,
PHILADELPHIA.

TUBERCULOSIS OF THE KNEE.

Dr. Willard showed three series of skiagraphs¹ taken from tubercular knee-joints. One was from a man, thirty-eight years of age, who had suffered with a slow tubercular inflammation of the knee for nearly two years. The condition had been quiet for a year, and the shadowgraphs were taken for diagnostic purposes to decide upon the safety of cautious attempts at manipulation. Both anterior and lateral views showed the outlines of the femur and tibia clear, sharp, and distinct. (Figs. 1 and 2.) It was, therefore, deemed safe to make an attempt at restoration of function.

Under ether the knee was flexed to a right-angle. No inflammatory symptoms followed the operation, which will be repeated later.

The second series of four skiagraphs (two only published here) were taken from the four aspects of a tubercular knee which had become ankylosed without suppuration, the object of the views being to decide whether it was safe to undertake operation for the restoration of motion.

This second patient had had symptoms of tubercular osteitis for ten years, and the limb had become fixed in the straight position. The shadow-view, from every aspect, showed marked

¹ Taken by Professor Goodspeed at the University of Pennsylvania.

erosion not only in the condyles, but throughout the whole articular surface of the femur and tibia. (Figs. 3 and 4.) Laterally the erosion of the bones was very marked. The patella was also found to be fastened to the femur by bony growth. Partial posterior displacement of the tibia was also evident. Destruction of the joint was very great, and attempt to secure a movable joint was abandoned lest further inflammatory trouble should be awakened.

The two sets of skiagraphs bring into marked contrast the two stages in bone-destruction which exist in tubercular disease, and demonstrate that the use of rays for the purpose of diagnosis and treatment is of the greatest practical value.

The third set of skiagraphs (not published here) were from a child, six years of age, who had suffered for a year with tubercular disease of the knee. There was decided induration about the joint, and in the leg flexion had occurred to a right-angle.

As the skiagraph showed no bony deposit in the joint, and as there was no marked erosion, cautious attempts at forcible extension were instituted. This was followed by weight-and-pulley tension, which in two weeks' time resulted in bringing the limb within ten degrees of the straight line without inflicting pain or producing any unpleasant results.

CLUB-FOOT.

The delineation of talipes was from an untreated case, a boy, six years of age. The skiagraph was taken especially to demonstrate the width of the astragalus and to decide whether it could be replaced between the malleoli without tarsectomy. (Fig. 5.)

The results gave a clear outline of the deformity and demonstrated that replacement was possible. Subcutaneous sections of all the contracted tissues, with forcible straightening, proved the correctness of the decision.

The radiograph showed most beautifully the cause of the obliquity of the metatarsals and their relation to the tarsus in a case where the foot has been walked upon for years. The

second, third, and fourth metatarsals were actually dislocated toward the fifth, so that they overlapped to nearly one-half of their diameter. They were widely separated from the first metatarsal, which had become partially dislocated toward the inner side of the foot, its relation to the cuneiform being abnormal.

This condition shows plainly the serious obstacles to be overcome in the correction of this difficulty in old cases of varus, and confirms the necessity for early treatment; these cases should never be allowed to walk except upon the sole of the foot.

Skiagraph No. 6, taken two months later, shows that the forcible replacement practised was largely successful in overcoming even this deformity.

The epiphyses of the bones of the leg and foot are most beautifully delineated in Fig. 5, with centres of ossification.

GLASS IN FINGER.

Radiograph showing fragments of glass in granulation-tissue in ring-finger. (Fig. 7.)

CONGENITAL DEFICIENCY OF FINGERS.

This skiagraph (Fig. 8) was taken from a child three years of age, who possessed five tiny protuberances, in place of fingers, at the end of the metacarpal bones. Viewed externally, the bones of the carpus and metacarpus were normal; but under action of the Röntgen rays (which clearly disclosed the bones of the forearm) the hand was found to consist only of cartilaginous pieces, which may or may not ossify later.

The skiagraph also showed the difference in the density of the muscles and the subcutaneous fatty tissues.

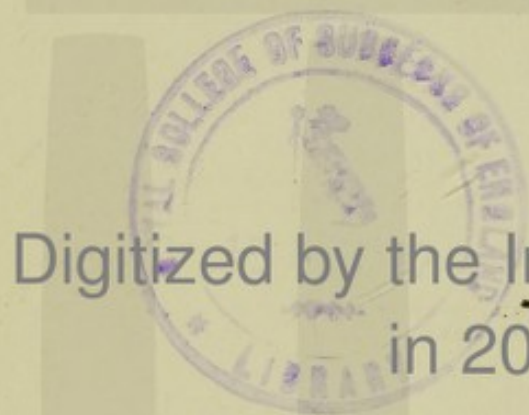
Although the fingers were but a quarter of an inch long, the boy could flex and extend them, and could most deftly grasp many small objects. The movements of the wrist and hand were normal.

Especially worthy of notice is the apparently long interval between the humerus and the bones of the forearm; this is due to the cartilaginous condition, which will ossify later. The child also had hypospadia.

KNOCK-KNEES.

The radiographs (Fig. 9) showed that the greatest curvature of the bones was at a point sufficiently far below the point of perforation of intercostal membranes by the artery to permit of safe osteotomy below the knee.

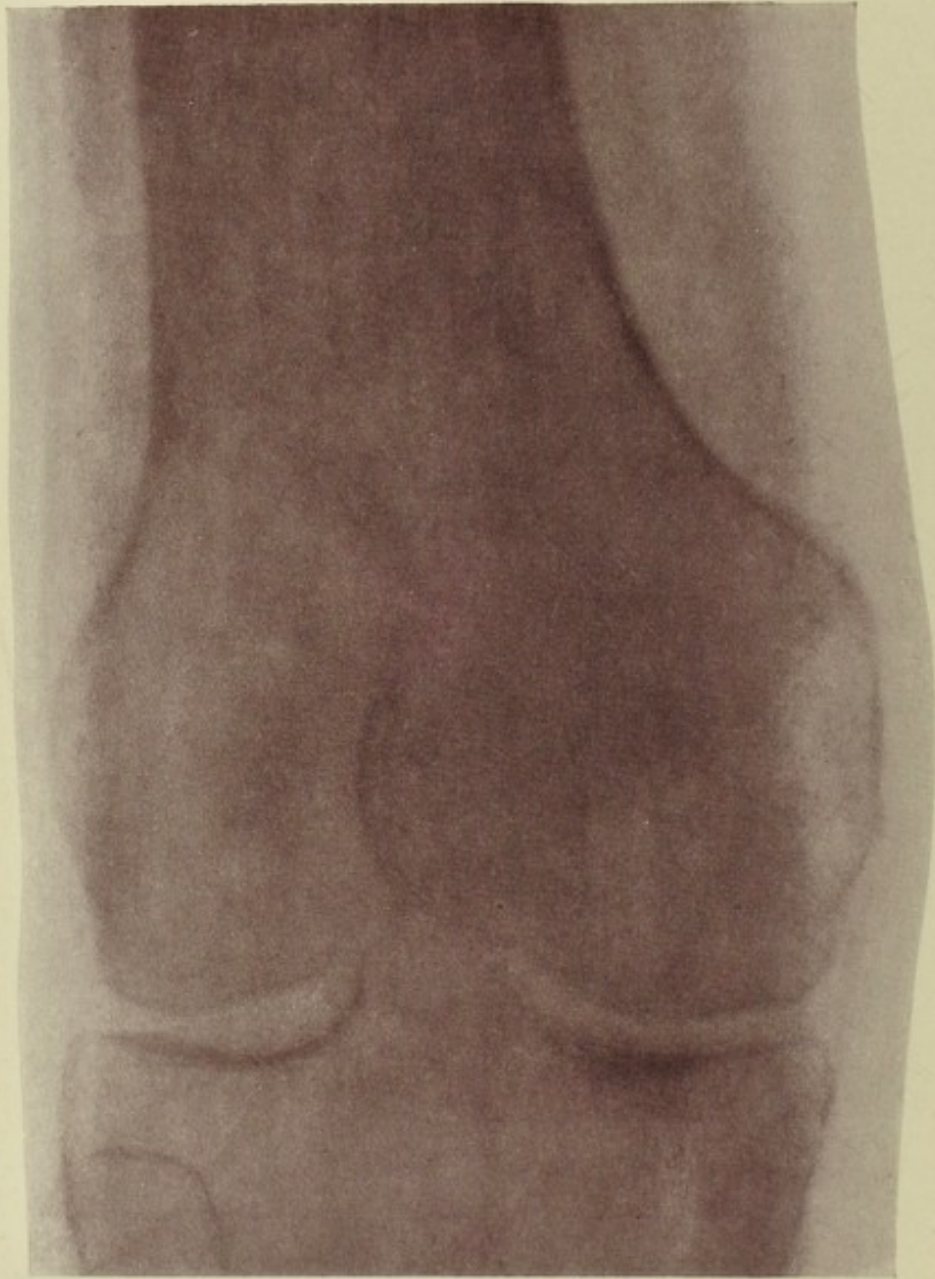
Both limbs were brought into straight line by section below the tubercle of the tibia, without interfering with the femora.



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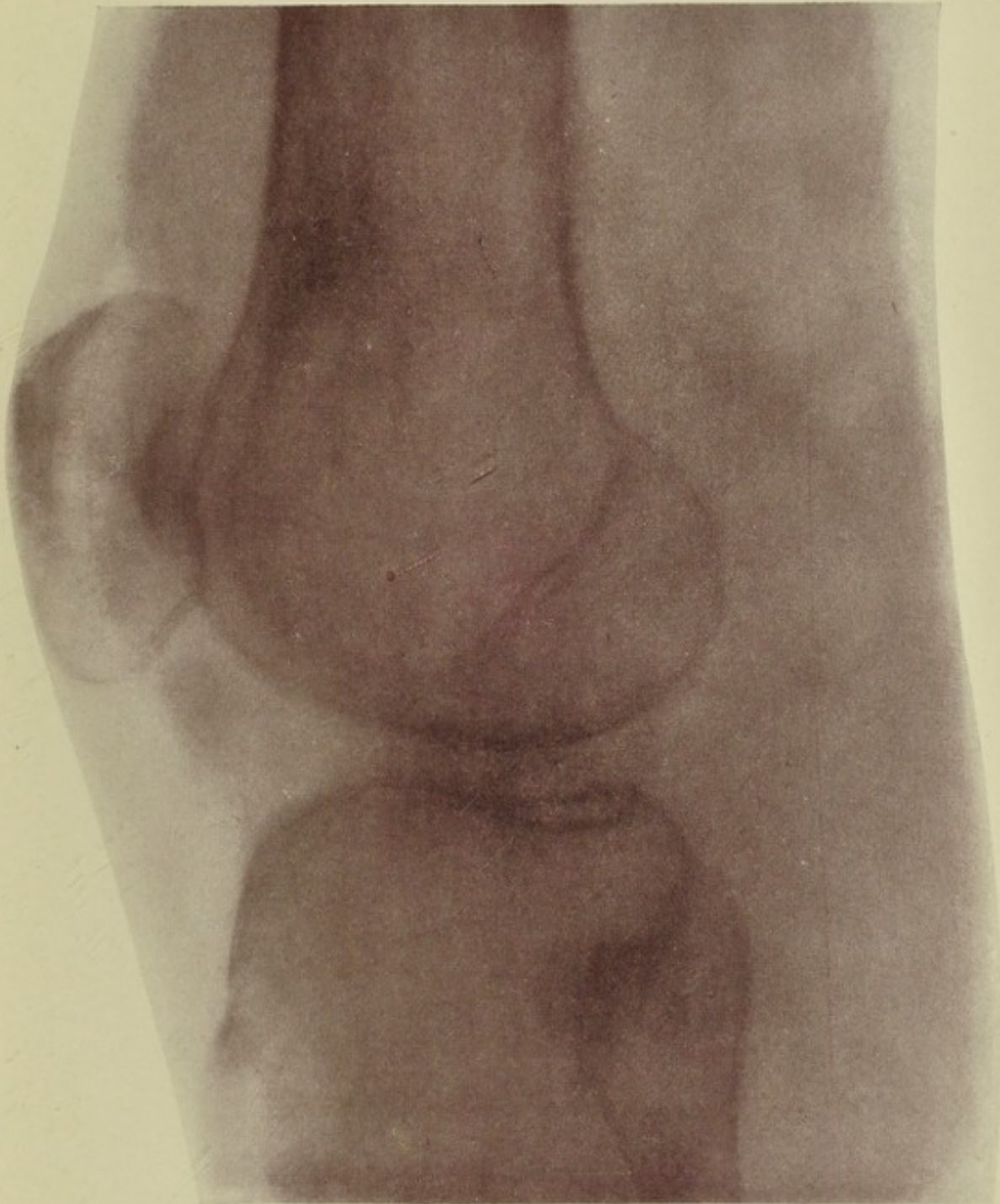
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FIG. 1.



Tubercular knee, with partial ankylosis, but without erosion of bone; adult.

FIG. 2.



Tubercular knee, with partial ankylosis, but without erosion of bone (lateral view) ; adult.





FIG. 3.



Tubercular knee, with ankylosis and marked erosion of both femur and tibia :
adult, aged twenty years.

FIG. 4.



Tubercular knee, with ankylosis, marked erosion of joint surfaces,
and partial posterior displacement (lateral view).



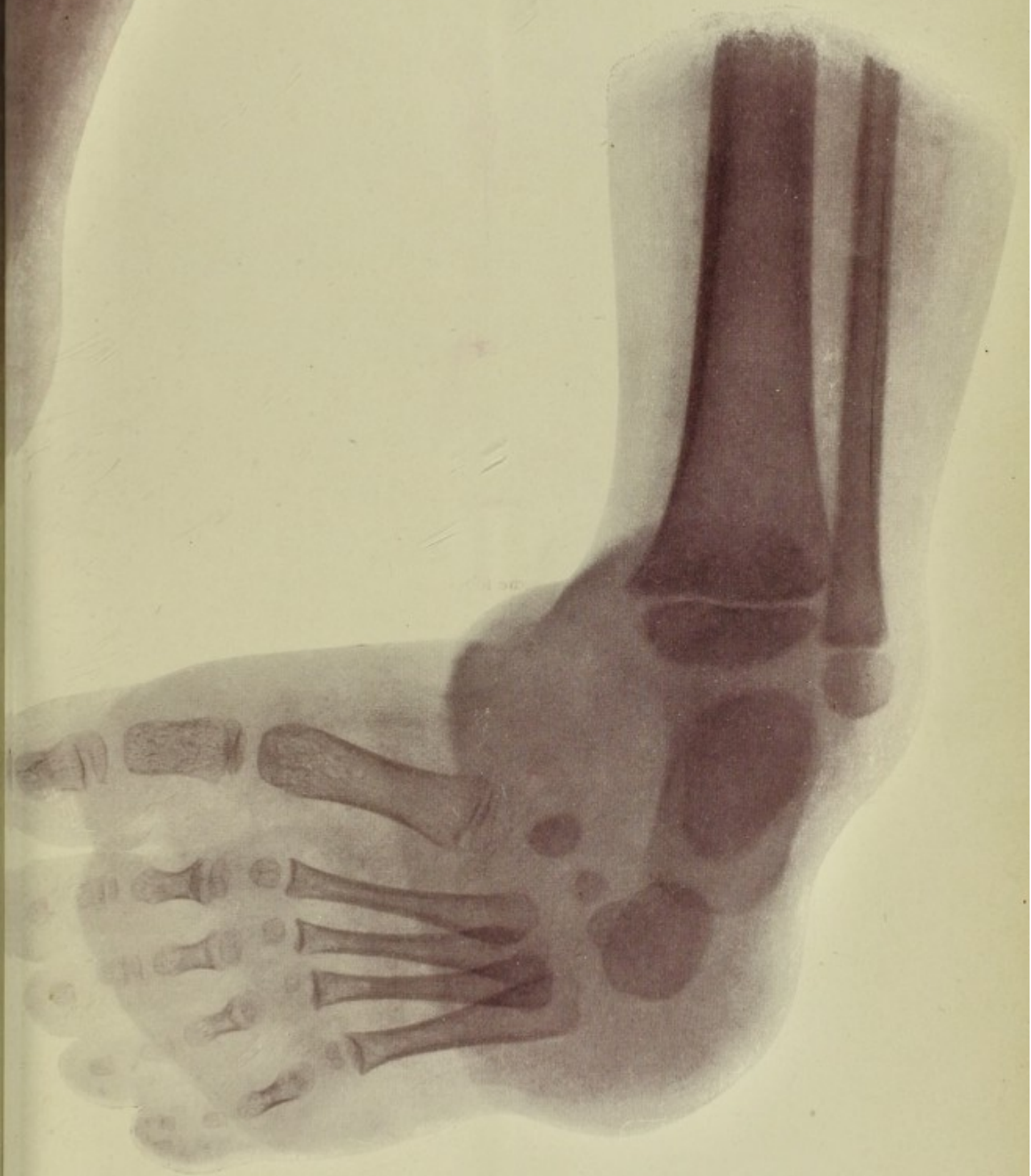


FIG. 6.



Indistinct radiograph of same foot as No. 5, two months after treatment.

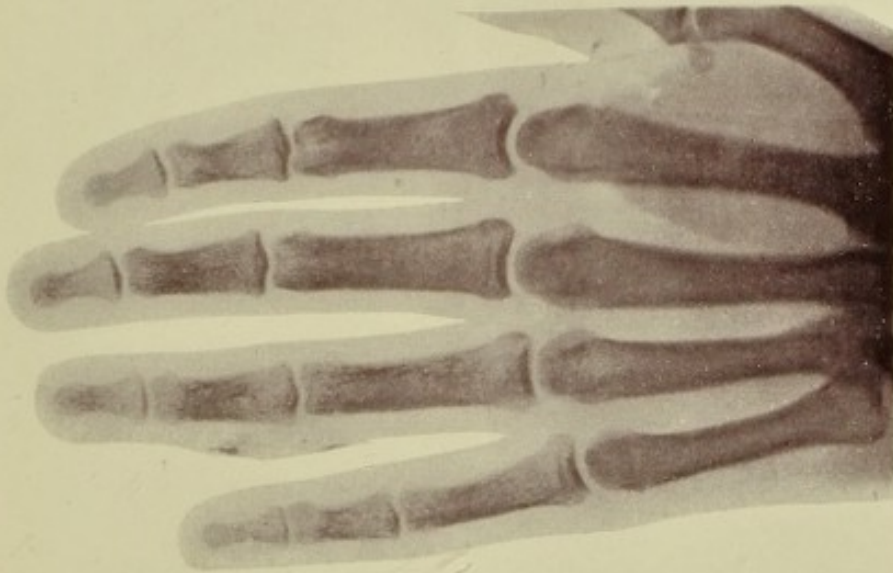
FIG. 5.



Club-foot, showing distorted astragalus and overlapping of the metatarsals; note epiphyseal lines and centres of ossification; child, aged six years.

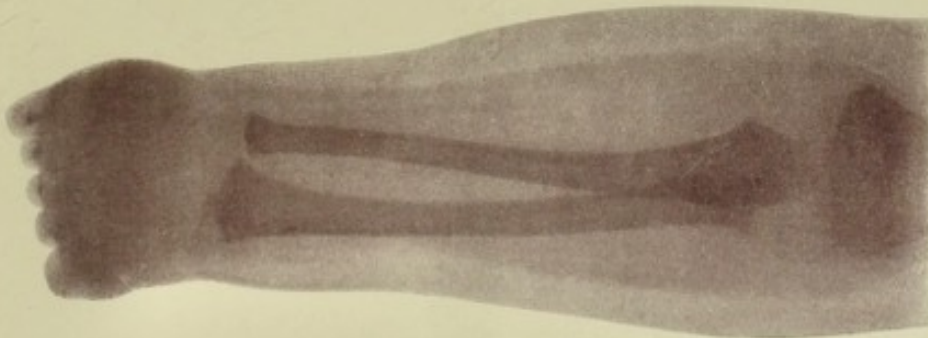


FIG. 7.



Glass on outer side of ring-finger; boy, aged fifteen years.

FIG. 8.



Congenital absence of first and second phalanges of all fingers,
with cartilaginous carpus; child, aged three years.



FIG. 9.



Rickety knock-knee; colored child, aged five years.

