TRANSACTIONS

OF THE

PHILADELPHIA ACADEMY OF SURGERY

Stated Meeting held February 7, 1921

The President, Dr. George G. Ross, in the Chair

FRACTURES OF THE JAW

Dr. George M. Dorrance presented patients to illustrate methods of treating fractures of the mandible. In the first case, a fracture in the right canine region, the fragments were held in place by an interdental splint. Such a splint is indicated when there is a single fracture anterior to the second bicuspid in which the teeth are present. At times it may be used further back. It has the advantage that no external bandaging is necessary, and the patient can open his mouth to talk, swallow, etc.

Case II was a case of multiple fracture in which the fragments were held in place by intermaxillary splints which were soldered in place. This is the ideal splint, and is especially applicable in such cases. The advantage of the splints is that as soon as the fracture has been reduced and the splints applied, the treatment is practically finished, and it is only necessary for the patient to return for treatment about once a week. Whereas in cases where wiring is used, it is necessary to see the patient every few days.

Case III, a fracture of the body of the mandible at the canine tooth, was treated by intermaxillary wiring. This is an excellent method.

Dr. Robert H. Ivy remarked that the chief difficulty about interdental splints is to have them made. Ordinarily it takes a man two full days to make a splint, and the men who know how to make them are very few. Very often it is two weeks or longer before a splint is ready for use. Intermaxillary wiring was available while waiting for the splint, or might be used throughout the treatment. In twelve or fifteen cases which he had treated this winter he had seen only one in which the maxillary wiring was not adequate. In some cases no fixation is necessary at all.

Doctor Dorrance rejoined that in the intermaxillary or the interdental splints when applied in cases which are suitable to each, the treatment of holding the fragments in position is practically finished. The wiring of the lower to the upper teeth will give satisfactory results, but requires continuous retightening of the wires from time to time. The splints, in other words, are the most refined and accurate method of fractures of the mandible.

BROKEN NECK

DR. HENRY P. BROWN presented a man whose case was reported by him at the December meeting of this society, while the patient was still in the Pennsylvania Hospital. He is a man who sustained a fracture of the atlas and axis in falling during an attack of epilepsy. He wore a jury-mast extension for six weeks while in bed, and was then allowed out of bed with a plaster collar, and now wears a reinforced leather collar which supports the weight of his head on his shoulders. He has limitation of motion, especially in turning the head to the right; flexion and extension is about twenty degrees in each direction. He still has pain on making pressure over the atlas and axis on the right side of his neck, posterior. At no time has he shown symptoms of nerve involvement, as indicated by paralysis or anæsthesia. He asked whether Doctor Rugh still thought that a bone-graft operation is indicated in this case.

DR. J. TORRANCE RUGH replied that since the man had made a good recovery and has no symptoms he saw no occasion for interference. The time for operation is early when there are nerve symptoms, pains, and instability. Then he would not hesitate to place a bone graft.

SNAPPING JAW

DR. ASTLEY P. C. ASHHURST reported a case of recurrent unilateral subluxation of the mandible cured by excision of the interarticular cartilage, for which see page 712.

INTERNAL DERANGEMENTS OF JOINTS

DOCTOR ASHHURST also presented the following patients:

I. *Loose Cartilage in the Elbow-joint.*—Charles S., aged twenty years, was admitted to the Episcopal Hospital, September 14, 1920, referred by Doctor Levering. He had injured his right elbow in a fall more than three years previously, and a certain amount of disability had persisted since. His chief complaint was "inability to bend the elbow at times," and always there was pain on complete extension.

Examination showed nothing but tenderness at tip of olecranon in forced extension. Flexion was normal. A skiagraph, however, showed a loose cartilaginous body in the olecranon fossa.

Operation (September 17, 1920).—Longitudinal incision 7 cm. in length was made, splitting the triceps from the olecranon up. The loose cartilage (Fig. 1) was found occupying the olecranon fossa; it measured 1.5 x 1.25 x 1 cm. It was entirely unattached, but caught beneath the thickened posterior capsule. It was easily removed, and the wound was closed in layers. A splint was worn for a few days, when active use of the arm was allowed. Full function rapidly returned. He now has no disability whatever, and full flexion and extension.

II. *Recurrent Dislocation of the Internal Semilunar Cartilage in the Knee-joint.*—M. W., aged twenty-five years, was admitted to the Episcopal Hospital, December 18, 1920, with the history that in 1918 while playing base ball he "dislocated" his right knee; it was "reduced" on the field. Since then he has had five dislocations and has always been able to reduce them himself, until the present occasion (December 17, 1920), when he tripped over a line about three inches from the floor where he was working, and landed on the right foot; as a result his right knee locked and has been locked ever since the accident.

Examination.—The right knee is locked in flexion about 150 degrees. Can flex it slightly, but extension and external rotation cause pain. Internal rotation does not cause pain.

Operation (December 24, 1920).—Longitudinal section of patella, splitting also ligamentum mucosum which was found already detached from the intercondylar groove, and exposing a fractured internal semilunar cartilage: the fracture was about 2 mm. from the anterior end of its tibial attachment, and the remainder of the cartilage was only loosely attached. Each fragment in turn was caught in a sharp tenaculum and excised. There was granulation tissue in the intercondylar notch, an evidence of long-standing arthritis. Structures were closed in layers and a posterior splint applied for the first few days. January 7, 1921.—On crutches. January 19, 1921.—Without crutches. January 25, 1921.—Discharged. Flexion to 150 degrees. His knee now flexes to 120 degrees and is painless. (When seen in March, 1921, flexion was possible to 90 degrees and was still improving. No disability.)

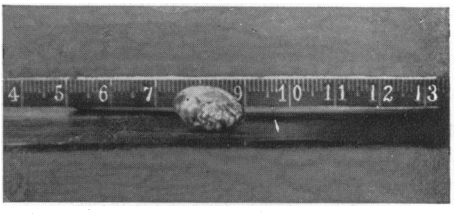

FIG. 1.—Case I. Loose cartilage in the elbow-joint. Scale in centimetres.

III. *Arthrotomy for Multiple Intraärticular Exostoses in the Knee-joint, Following Suppurative Arthritis.*—A. W., male, a native of Cuba, was twenty-eight years of age when he came to the Episcopal Hospital in October, 1915. In 1910 while employed in the Panama Canal Zone he developed an acute arthritis of the left knee, following some injury. He was taken to a hospital, and two days later an operation was done, tubes being used to drain the joint. It was thought he would die. Later weight extension was applied. He was in bed four months in the hospital, and used crutches for six months after his discharge.

His chief complaint when he came to the Episcopal Hospital was that he could not run, and that he could not stand long or do any hard work. He worked in a cigar factory. There was creaking on motion in the knee, and the range of motion was limited (95 to 165 degrees only). The patella could scarcely be moved on the condyles. The stability of the joint, as regards lateral motion,

was good. X-rays (Figs. 2 and 3) showed large masses of intraärticular new-formed bone, which evidently were the cause of the limited motion.

Operation (October 6, 1915).—Longitudinal section of the patella, the quadriceps tendon and the patellar tendon. It was very difficult to reflect the two halves of the patella because of bony masses at its lower border, not adherent by bone to the patella, but seemingly embedded in cartilage and fibrous tissue only. It proved difficult to excise these masses, but when once this was done, it was easy to reflect the halves of the patella, freely exposing the condyles. An exostosis the size of a plum arose from the external condyle,

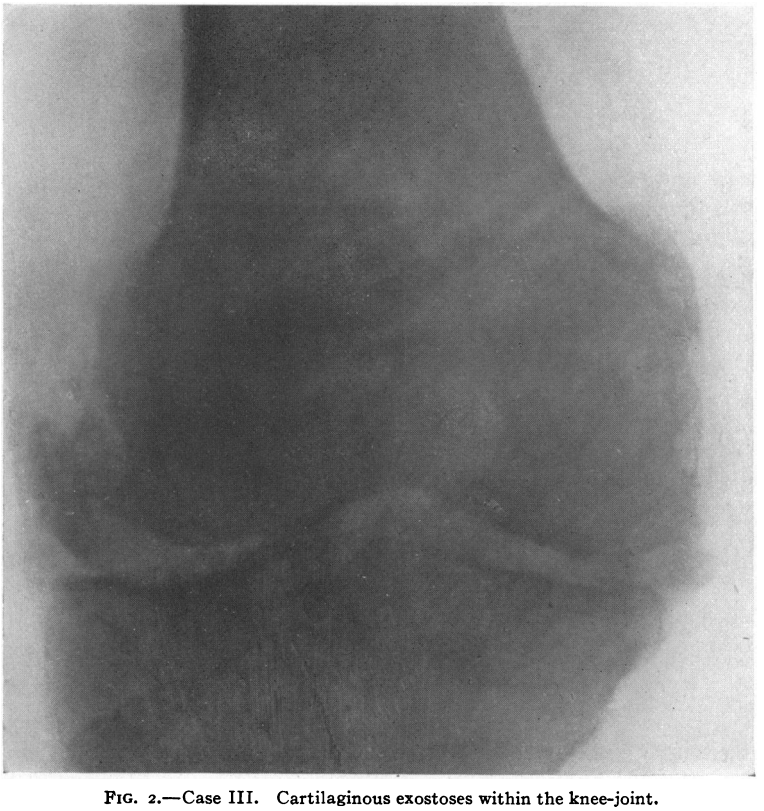

FIG. 2.—Case III. Cartilaginous exostoses within the knee-joint.

and was excised. There was marked lipping at the upper anterior border of the condyles at the margins of the articular cartilage. The patella was concave on its lower surface, and lipped on all its borders. As these lips were well covered with fibrous tissue they were not removed. The wound was closed in layers, and the limb dressed on a splint. Operative recovery was uneventful.

December 15, 1915.—About ten weeks after operation, as the range of motion was still limited (165 to 180 degrees), the knee was forcibly flexed under nitrous oxide anæsthesia, a free range of motion from 110 to 180 degrees being secured.

February 28, 1916.—It was noted that the range of motion was 105 to 180 degrees.

June 18, 1919.—Motion 80 to 180 degrees. Can "run" now whenever he wants to. The patella feels normal, the scar is soft and supple, and though there is marked crackling on motion, and he says that if he works hard the knee swells and pains some, yet

FIG. 3.—Case III. Cartilaginous exostoses within the knee-joint.

he is entirely satisfied with the result and has very much less disability than before operation.

February 7, 1921.—His condition remains as at the last inspection, June, 1919.

DR. J. TORRANCE RUGH reported the removal of a cartilaginous body from outside the head of the radius at the elbow under local anæsthesia. The X-ray had failed to show anything and the case looked like one of tuberculosis. There was a history of injury of two years' standing. In examining the patient, however, he felt something slip under his finger, and then realized that he had a foreign body in a joint to deal with. The foreign body was readily removed.

DR. T. TURNER THOMAS said that some years ago he had a patient who

could demonstrate to him that he had a foreign body in one of his knees. He said he had the same thing in the other knee. The doctor operated on the side where he could locate the foreign body and removed it. Because the man insisted that the same condition existed on the other side, he made two large lateral incisions and thoroughly explored this joint, but nothing was found and the two incisions were closed. He has never had any trouble in either knee since, and that was eight or ten years ago. We concluded that there was probably a loose cartilage in this other knee, that the contraction of the capsular ligament to which the cartilage is intimately attached, from the operation was enough to prevent dislocation of the cartilage.

INTESTINAL OBSTRUCTION CAUSED BY BAND FROM MECKEL'S DIVERTICULUM

Drs. Edward T. Crossan and (by invitation) Don G. Lew reported the history of a man, aged nineteen years, who was admitted 10.30 P.M., January 20, 1921, to the service of Dr. A. P. C. Ashhurst at the Episcopal Hospital. His chief complaint was pains in the right lower abdomen, which began five and a half hours before admission to the hospital. The patient was not nauseated and had not vomited. Has had a history of three previous attacks, the first one eight months ago, the second one five months ago, and the third one six days ago; each of these attacks was accompanied by vomiting and with only one day's duration, disappearing after a laxative.

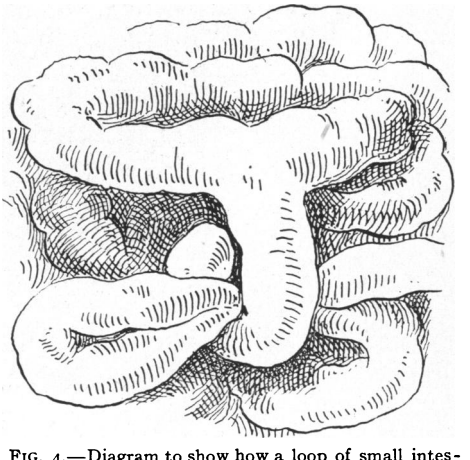

Fig. 4.—Diagram to show how a loop of small intestine was strangulated inside a loop formed by an adherent Meckel's diverticulum.

He appeared to be in great pain and acutely ill. The abdomen was not distended, no bulging any place in the anterior abdominal wall. Peristalsis audible but not increased. The right lower abdomen was rigid and extremely tender. Umbilicus abnormal, shaped like a small doughnut, being much elevated all around the periphery and depressed in the centre, three cm. in diameter. The remainder of the physical examination was negative. White blood count, 15,400. Urine showed a faint trace of albumin and occasional hyaline and light granular cast.

Doctors Crossan and Lew operated upon the patient, a Davis transverse incision being made and the appendix removed; the appendix was kinked in one place and congested, and on opening blood was found in the lumen and a small fæcolith at the tip. The cæcum and ileum showed

nothing abnormal at operation. The finger was introduced and swept around the anterior wall in region of the umbilicus, suspecting Meckel's diverticulum because of the queer-shaped umbilicus. Nothing was encountered and the patient was sewed up.

The next morning, January 21, 1921, patient said he had some pain still and vomited once for the first time. About 2.00 P.M. the patient had stercoraceous vomiting.

At 4.30 P.M. Doctor Ashhurst saw the patient and, recognizing the acute intestinal obstruction, immediately reopened the abdomen under gas. A long, black coil of intestine prolapsed on opening the peritoneum; small intestines were distended and injected; sigmoid collapsed, containing scybalous masses; cæcum and end of ileum collapsed; an adherent mass in the pelvis delivered and found to be a Meckel's diverticulum, strangulating a mass of small intestines by an appendix-like structure adherent to the end of diverticulum about 1 x 6 cm., and attached to the pelvis (Fig. 4). The diverticulum was a pouch the size of a large hen's egg, wider at the base, springing from the anterior part of the bowel opposite the mesenteric border (Fig. 5). The adhesions were divided and the prolapsed bowel was reduced by towel manœuvre and a Paul's tube sutured into the apex of the diverticulum. The patient's condition was poor following the operation. He grew steadily worse and died about forty-eight hours after the operation, apparent cause of death being toxæmia from paresis of the bowel and uræmia.

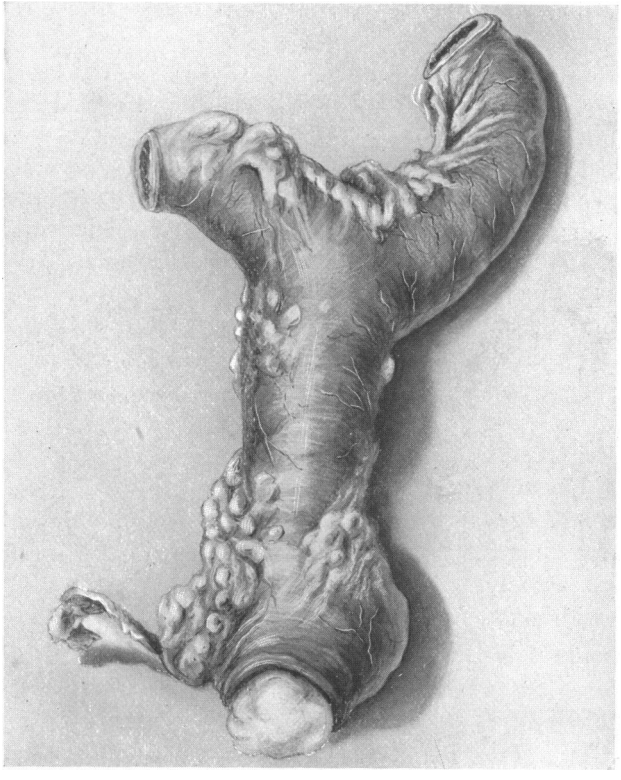

FIG. 5.—Specimen of Meckel's diverticulum. The ileum is seen running transversely above the large dependent diverticulum; into the fundus of this diverticulum a Paul's tube was sewn at operation (enterostomy). At the left of the diverticulum is shown the fibrous band which was adherent to the parietal peritoneum and completed the circle in which a neighboring coil of ileum became strangulated as indicated in the small sketch (Fig. 4).

Post-mortem examination revealed nothing new outside of distended and congested bowels and congested kidneys. No peritonitis.

TREATMENT OF INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR

DR. EUGENE C. MURPHY and DR. GEORGE M. DORRANCE presented a paper with the above title, for which see page 752.

DR. A. P. C. ASHHURST said it should be well to recognize that no method is infallible always. He had one patient in the Episcopal Hospital, a woman about fifty years of age, in whom he reduced the intracapsular fracture to the best of his ability by abduction, and treated her in an abduction case for the usual time, but on removal of the case the fracture simply fell apart, there being no union at all. This was corrected by implanting a bone peg.

In his opinion some of the skiagraphs shown in illustration of Doctors Murphy and Dorrance's paper are certainly not intracapsular fractures. At least one X-ray shown is clearly a " fracture through the trochanters."

DR. T. TURNER THOMAS said that in a former discussion of this subject he heard one surgeon in criticising this treatment say that it was cruel to put these old people in a plaster case. On that occasion Whitman argued that the case made for increased comfort, which opinion Doctor Thomas thought to be correct. Last summer he had a man over sixty with a fracture of the femur and an amputation of the thigh on the other side. He put an abduction case on him and an ordinary wood screw through both fragments, taking full weight on the fractured limb, with good motion in the hip-joint. He is now able to go about on crutches and his foot seems to be in good position.

DR. GEORGE M. DORRANCE said that some of these cases came to them almost moribund. After they were put in abduction plaster cases, it was surprising to see the difference. The case should be applied as soon as possible after the accident. They have been breaking up impactions, although not sure that it is best to do so. Seventeen to eighteen weeks is about the right time that these patients should be kept in the case. They should not walk for four or five weeks thereafter. There is firm fibrous union in these old people in from fourteen to fifteen weeks.

INTRACAPSULAR FRACTURE OF THE NECK OF THE FEMUR

DOCTOR ASHHURST reported the following case: Susan B., aged eighty-one years, was admitted to the Episcopal Hospital, April 21, 1920, one week after a fall down some steps in which she had injured her *right* hip. Skiagraphs (Doctor Bromer) showed " fracture of the neck of the femur with impaction; this also involves the great trochanter " (Fig. 6.)

The day after admission, April 22, 1920, under nitrous oxide anæsthesia, Doctor Ashhurst forcibly abducted the *right* hip and rotated it in, to secure permanent impaction; a plaster-of-Paris dressing was applied from axillæ to the toes. Bed-sores were present over the sacrum and the *left* heel.

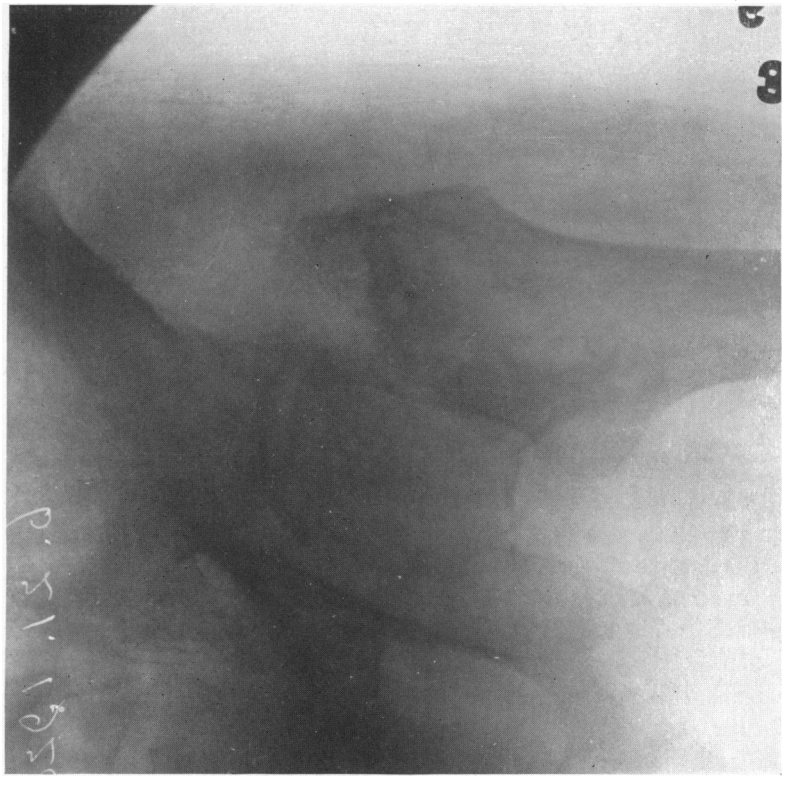

FIG. 7.—Intracapsular fracture of the neck of femur after ten weeks in abduction cast.

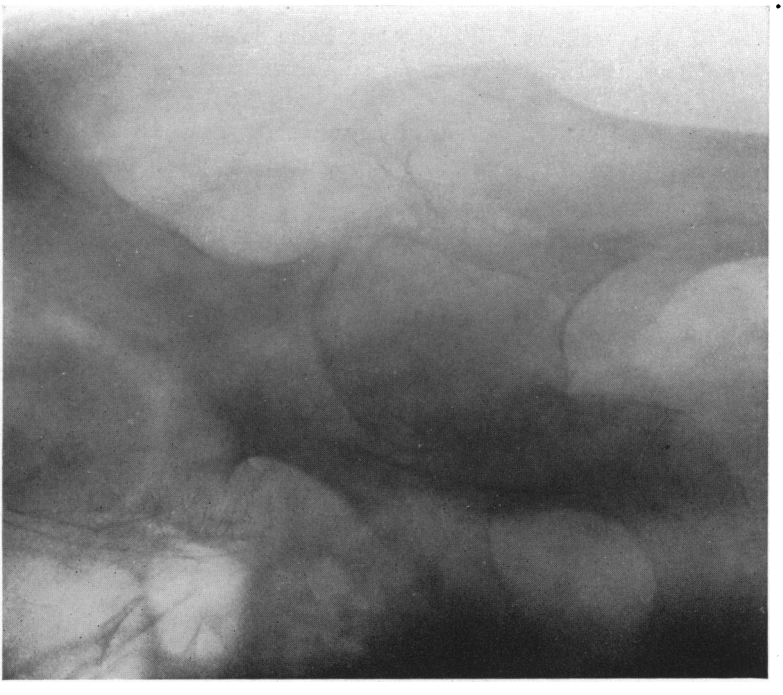

FIG. 6.—Intracapsular fracture of neck of right femur; skiagraph made April 22, 1920, on admission to hospital, one week after injury. Age, eighty-one years.

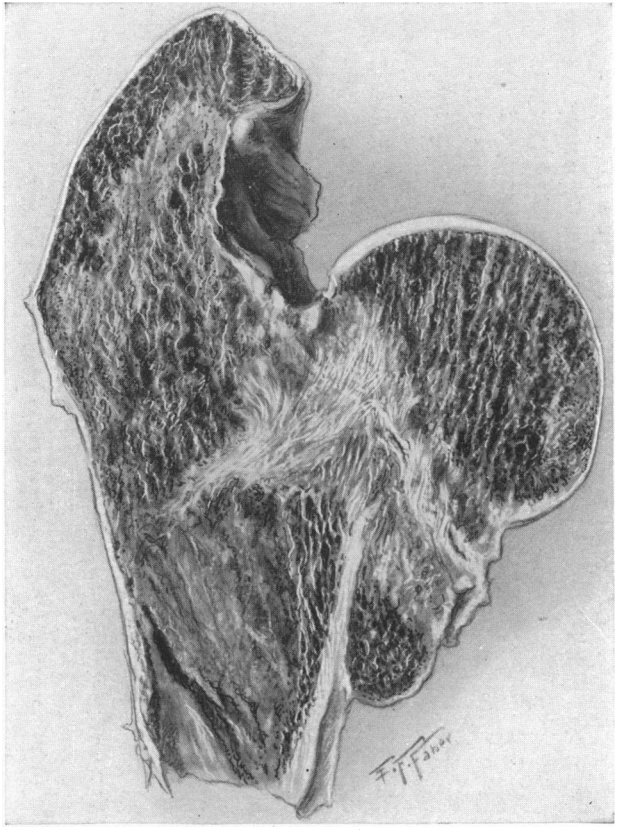

FIG. 8.—Specimen of ununited fracture of the neck of the right femur (intracapsular) secured nine months after injury, in a woman eighty-one years of age. The apparent impaction of the recent fracture is shown in Fig 6, and the apparent union after treatment in an abduction cast is shown in Fig. 7.

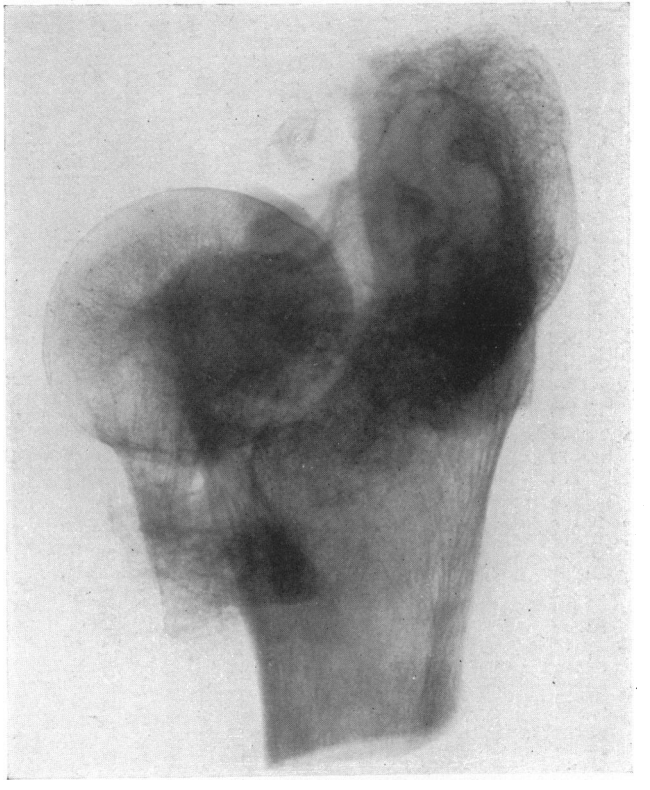

FIG. 9.—Skiagraph of post-mortem specimen of an intracapsular fracture of the neck of the femur. See also Figs. 6, 7, 8.

June 21, 1920.—The sacral bed-sores had healed; that over the left heel is granulating slowly. X-ray, "the old line of fracture can scarcely be seen; while there is considerable rarefaction there appears to be fair union" (Fig. 7). The case was removed piecemeal, from eight to ten weeks after the reduction.

August 15, 1920.—Up and about in chair. August 20th.—Learning to walk. August 24th.—Can raise right lower extremity off bed when lying on back, and flex hip and knee each about 30 degrees from full extension. Passive flexion of hip to 135 degrees and of knee almost to 90 degrees.

October.—Was able to walk entire length of ward (90 feet) with support. December.—Gradually weakening—confined to bed. January 2, 1921.—Died of asthenia.

The specimen, removed post mortem (Figs. 8 and 9), shows marked deformity as compared with the skiagraphic picture made after union was supposed to have been secured: the neck is almost wholly absorbed, the shaft fragment has ascended until the lesser trochanter catches on the head, and there is only fibrous union present. This indicates that (1) the original diagnosis of impacted fracture "at the base of the neck" was incorrect, the line of fracture being entirely intracapsular; (2) the fixation in abduction should have been continued much longer than eight or ten weeks; (3) walking should not have been permitted as soon as four months after injury. But in view of the patient's advanced age, and her comparative comfort under the method of treatment pursued, it is doubtful whether even if bony union had been secured, life would have been longer preserved.

Dr. John H. Jopson showed the X-ray of the neck of a femur in a patient then under treatment. The patient was a young man aged thirty years. Four or five weeks ago while mounting his horse it fell and probably fell on him. He went back and forth to business in an automobile. At the end of three and one-half weeks he had X-ray pictures taken which showed a fracture through the middle of the neck of the femur, apparently without much deformity; undoubtedly there was some impaction. The man was put up in a plaster case from the lower thorax to the ankle. Recently Armitage, after a careful review of the condition and a careful study of the vascular supply, shows why we do not get union in elderly people. The blood supply in young life is rich; as the person advances in life the blood supply decreases. The reason healing does not occur in the advanced person is the presence of disease in the absence of a rich blood supply. We get the ideal result only in the exceptional case.

SPECIMENS OF FRACTURE OF THE VERTEBRAL COLUMN

Dr. Astley P. C. Ashhurst and (by invitation) Dr. A. A. Walkling presented the following specimens from the service of the former in the Episcopal Hospital:

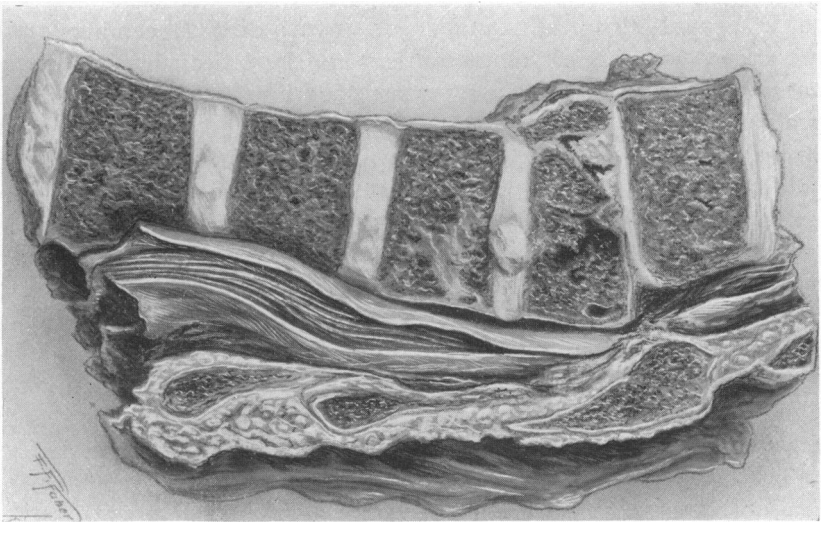

FIG. 10.—Specimen of fracture of the eleventh dorsal vertebra, spinal cord crushed against the posterior upper margin of the eleventh. Removed at autopsy three and one-half months after injury.

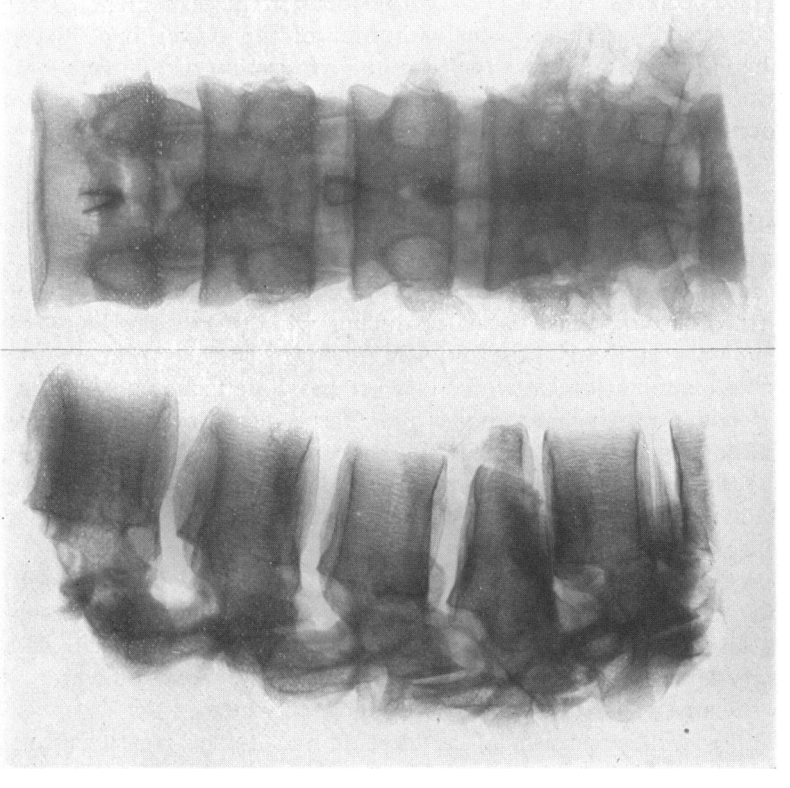

FIG. 11.—Skiagraph of the post-mortem specimen of fracture of the eleventh dorsal vertebra.

Jacob U., aged fifty years, admitted to Doctor Ashhurst's service in the Episcopal Hospital, October 12, 1920; died December 15, 1920. August 31, 1920, he fell about ten feet and landed on his back; was unconscious at first and on recovering consciousness found that he was paralyzed from the waist down. He was taken at once to a hospital in Springfield, Mass., where the accident occurred, and there a suprapubic cystotomy was done. He was brought to his home in Philadelphia to die.

Examination indicated a complete lesion of the spinal cord at the level of the eleventh or twelfth dorsal vertebra. A skiagraph (Dr. R. S. Bromer) showed fracture of the body of the eleventh dorsal vertebra, with forward displacement of the tenth. The bed-sores present on admission gradually improved; but early in December the patient developed fever, probably from infection of the kidneys and bladder; also a lymphangeitis of the right lower extremity. He gradually failed and died December 15, 1920, three months and a half after his injury.

This specimen (Fig. 10) was secured by Dr. A. A. Walkling, resident pathologist, at the autopsy, which also showed acute cystitis and ureteritis on the right; early pyonephrosis on the right, and chronic interstitial nephritis on the left.

The specimen shows clearly the forward displacement of the tenth dorsal, how the upper posterior border of the eleventh dorsal vertebra crushed the cord; it shows the triangular fragment of this vertebra broken off the upper anterior portion of its body, and the bony union which has occurred. Fig. 11 is from skiagraphs of the specimen.

FIBROMA OF THE OVARY

DOCTORS ASHHURST and WALKLING presented an ovarian tumor removed from a woman sixty-five years old who was admitted to the Episcopal Hospital December 7, 1920. Chief complaint—incontinence of urine for past three months, during which time she had had a dull aching pain in the right groin. Menopause at forty-nine years of age. Vaginal examination showed a large immovable mass posterior to uterus, filling entire true pelvis; cervix and uterus also almost immovable. Preoperative diagnosis: Uterine fibroid, subperitoneal, impacted in pelvis.

Operation (December 10, 1920).—A fibroma of the ovary, firmly impacted in pelvis, was removed. Right tube removed with tumor. Left tube, seat of hydrosalpinx, also removed.

On the thirty-sixth day post-operative, up in chair—short of breath; back to bed. Four days later, up in chair again—no heart symptoms. Four days later, walking with nurse's aid—no symptoms. Two days later, January 26, 1921, she died suddenly while up and about the ward. Autopsy showed cause of death to be myocardial degeneration.

The specimen consists of a dense fibrous tumor measuring 12 x 6 x 4 cm. and weighing 170 grammes. (Fig. 12.) Microscopical examination: Fibroma.

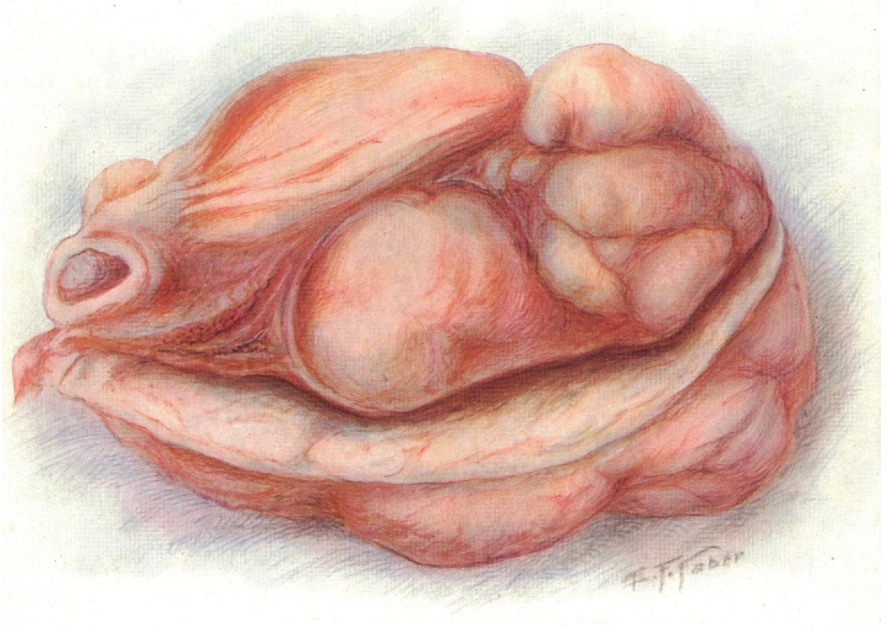

FIG. 12.—Fibroma of ovary removed by laparotomy from a patient 65 years of age.