operative. *Gait* peculiarly spastic; the right lower extremity is flexed at the hip, markedly adducted, and the foot is in equino-varus; clonus is induced at each step and the left leg has to be swung around the adducted right leg. Examination of the head, neck, thorax and abdomen, upper extremities and external genitals, negative. *Spine*—There is a rounded kyphos in the region of the eleventh and twelfth thoracic vertebrae, and a sharp lordotic curve in the region of the third lumbar vertebra. Motion in all parts restricted, but present to a fair degree. *Lower Extremities*—The right shows permanent flexion and adduction deformity of the thigh, partially correctible under *gentle* manipulation. All of the muscle groups are spastic. The right foot is in the position of equino-varus. The left lower extremity is slightly spastic, but full range of voluntary motion is present. *Reflexes*—Knee jerks on the right are characteristically spastic. There is right clonus and Babinski. No sensory disturbances are noted. *Blood*—Wassermann, negative. *X-ray*—The sacrum appears flattened. There is an irregularity in the third lumbar vertebra, and the body of the twelfth thoracic is increased in its transverse diameter. Old fracture of the twelfth thoracic and third lumbar vertebrae.

Neurological Opinion—Originally, a haematomyelia with cord injury at the twelfth dorsal and first lumbar segments, probably. *Prognosis*—Permanent condition as exists at present. No treatment advised unless some peripheral means are indicated.

Operative indications were correction of adduction and equino-varus deformities by restoring power balance in the affected muscle groups.

Operation—September 22, 1920. Under ether anesthesia, the anterior ramus of the obturator nerve was resected 3 cm. from the obturator foramen. The tibial nerve was exposed at the popliteal space and two-thirds cross-section was resected from the funiculi to the gastrocnemius; the dorsal funiculus to the soleus was completely resected. The funiculus to the tibialis posterior was resected to one-half cross-section. Surgical recovery uneventful. On the second day following operation, the general spasticity seemed markedly aggravated. This soon subsided, however, and at the end of a week, a fair range of voluntary abduction of the thigh, dorsiflexion and abduction of the foot were possible. The patient was discharged from the hospital on the eighth day following operation, and nine days later secured a position in the hospital as ward tender. The improvement in his gait was quite remarkable.

On November 20, 1920, he reported with a painful, swollen knee on the right, which was apparently due to strain, incident to his new static position and consequent activity. An accident, occurring in the course of his work some days after, necessitated readmission to the

ward. His spasticity in general had been aggravated by the injury. This quieted down with rest, but, following consultation with Dr. Osgood and Dr. Smith-Petersen, it was decided that further improvement could be obtained and possible relief of the knee strain could be effected by correcting his hip flexion. Neurotomy of nerves to the ilio-psoas being out of the question, its detachment from the lesser trochanter was carried out in the following manner:

Operation—December 8, 1920. Through an incision over the gluteus maximus, fibres of that muscle were divided in their longitudinal plane, likewise those of the quadratus femoris, and the ilio-psoas was raised from its insertion subperiosteally. As the muscle was detached, the thigh hyperextended without force. Surgical recovery uneventful. The patient was discharged to the Out-Patient Department twelve days later, where he has been under observation up to the present time.

His knee symptoms have been entirely relieved, extension of the thigh is free, there is considerably less lumbar lordosis, and corrections resulting from the nerve operation have not only been retained, but have shown improvement both in the degree of motion and in the volitional control. He is at present able to walk a mile or more without fatigue, and is employed as a fireman at one of the hospital buildings. He intends to return aboard ship as a seaman within the next month.

CONCLUSION.

It goes without saying that an end result is not embodied in this report. The immediate effect of the operations is favorable. Regeneration of the resected nerves, with return of spasticity, has been forestalled by transplanting the proximal stumps into the superficial fascia. Other contingencies may arise later on to discredit present results. It does, however, seem fair to infer that cases of this type offer a field for neurotomy.

Further studies, including technique of operation, will be offered in a future communication.

MARKED SCLEROSIS OF THE ABDOMINAL AORTA.

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ARTERIOSCLEROSIS is so common, and various calcium depositions in the body are so numerous, that when coupled with the radiographic examination of today we frequently diagnose many conditions which hitherto were considered rare or only seen upon the autopsy table.

Arteriosclerosis, calcified glands, calcified hemangiomas, myositis ossificans, gall bladder and urinary calculi are seen almost daily in a large radiological clinic. However, the case presented, a well advanced case of arteriosclerosis, is unusual in the degree and location of the calcium deposition.

The patient was a married woman of 64 years, who was advised by her physician to enter the hospital for diagnosis. The following is a brief history and findings of the case:

About 24 years ago the patient had an acute swelling of the glands in the right axilla. The swelling later ruptured, discharged some pus and finally healed. The glands of left side of the neck were lanced 14 years previous. At present there is a mass in the abdomen. This

FIG. I.

mass, coupled with the enlarged axillary glands, caused the physician to suspect the possibility of carcinomatosis.

Physical examination showed the cervical glands to be barely palpable. In the right axilla were found several cherry like, hard nodules, freely movable but attached to the skin beneath an old scar. The left axilla was negative.

In general the chest showed the percussion note to be hyper-resonant throughout. There was relative dullness at both apices where the spoken and whispered voice was increased and the breath sounds slightly prolonged. The percussion of the heart was masked to some extent by the emphysema of the lung. The cardiac impulse was in the fifth interspace, 8 cm. from the mid line. There was a fine thrill, either

with systole or just preceeding it, at the apex. The first sound was not transmitted to the axilla but could be heard along the sternal mar-

FIG. II.

gin. The second pulmonic was accentuated. There was a short systolic murmur at the base which was faintly transmitted to the vessels of the neck. There was no thrill present and the second aortic, although not loud, was somewhat snapping. Except for slight thickening of radial artery, the pulse was negative.

The abdomen was thin and relaxed. There was a marked diastasis of recti. The liver reached 1 cm. below costal margin and was not

FIG. III.

tender. The right kidney was palpable. Just to the left of linea alba, extending vertically downward, and parallel to it, was an elongated, firm mass which extended downward to a point 1 cm. below umbilicus. The abdominal aorta pulsed above and below the mass, and over the upper end a systolic bruit could be heard. The mass was smooth and was very slightly movable; upon deep pressure there was some pain in the back. In the left lower quadrant was an oblique mass, the size of the finger, corresponding to the position of the common iliac artery.

Figure I represents a radiographic picture of the lumbar region and shows a well marked calcification of the lower portion of the abdominal aorta to its bifurcation just to the left of the fifth lumbar vertebra. The lateral view (not shown) shows well calcified borders and no destruction or atrophy of any of the vertebra.

Figure II shows a well marked calcified crescent shaped plaque in the arch of the aorta. Numerous calcifications in the hilus region and in the upper cervical and axillary glands.

Figure III shows entire calcification of femoral arteries on both sides. The plate has been retouched somewhat and is not exceptionally clear.

The blood pressure, Wassermann and other tests were negative. The diagnosis was arteriosclerosis, emphysema and probably old pulmonary tuberculosis, with calcified cervical and axillary glands.

THE USE OF SODIUM BROMID SOLUTION IN PYELOGRAPHY, AND ITS TOXICITY IN COMPARISON WITH OTHER MEDIA.*

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PYELOGRAPHY is the process of obtaining a radiograph of the pelvis of the kidney and ureter, by first injecting the pelvis of the kidney and ureter with an opaque substance, and then taking an x-ray plate of the same.

This work was first successfully demonstrated by Professor Voelcker of Heidelberg, in 1906, but since that time the technique has been more or less improved upon. until today it is being well demonstrated by urologists over the entire world.

There is no longer any question as to the great value of pyelography. Whenever renal catheterization is necessary for purposes of diagnosis, the procedure is almost routine. Ever

since Voelcker's demonstration, urologists have sought an opaque medium other than the colloidal silver preparations commonly used. These mediums have been definitely shown to be injurious to the kidney tissue, and it is also known that they enter the circulation.

Two years ago, Weld¹ carried out the following series of interesting experiments regarding the toxicity of mediums used in pyelography. Dogs were anaesthetized and kept under light constant ether tension by the Connell apparatus. The carotid artery was arranged to record carotid blood pressure. The femoral vein was exposed for injections. Solutions of 25% sodium bromid, 25% potassium iodid, 25% sodium iodid, and 15% thorium nitrate, were tested. The intravenous injection of the sodium bromid, in four different dogs, produced practically no effect, even when 55 c.c. were given. Usually, there was a slight increase in blood pressure, possibly due to an increase in fluid volume. Injecting 2 to 3 c.c. of the potassium iodid solution caused the blood pressure to drop almost to zero, and almost instant death. Injecting 50 c.c. of the sodium iodid solution in two dogs, caused a slight reaction, from which the animals soon recovered. The toxicity of the thorium nitrate was variable, and seemed to be influenced by the age of the solutions. However, several of the animals died immediately following its use, and in several others the reaction was severe.

Weld, in this same paper, reports a death following the use of thorium. Burns,² in 1916, published an article recommending the use of this medium, and apparently had good results with it. Notwithstanding this fact, it is believed that thorium has a direct toxic effect on the heart muscle. Incidentally, it is more difficult to prepare than some of the other mediums. To prepare it, one must neutralize with sodium hydroxide in the presence of sufficient sodium citrate to prevent precipitation of the thorium. This is a complex process and must be performed with care. Again, thorium salts are expensive and often unobtainable at drug firms.

Thorium iodid has been used with some success, but it is very scarce and expensive. The objection to strontium iodid and bismuth is that both these substances form a precipitate, even after the most careful preparation.

In March, 1918, Cameron³ made a preliminary report on the use of potassium and sodium

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