

ordinated movements remained. These frogs were shown especially, because it would appear that certain changes in the nutrition of the animals had taken place leading to necrosis of the skin, etc., and ulceration. On one occasion, when the surroundings had been changed, one of the frogs had shown tonic spasm of the limbs. This reminded Dr. Mills of what Prof. Goltz had told him, when a worker in his laboratory in 1884, that many of the dogs whose cerebrum had been operated on died in convulsions weeks or months afterwards. The frogs in question had been in only fairly favorable surroundings, and had been given a little food a few times, but food was of minor consequence to frogs in winter. A frog that had not been operated on, and kept under somewhat similar circumstances, was shown and seen to be in a very different state of health. Dr. Mills thought the operation had greatly lowered the vitality of the frogs, and this was one of the chief lessons conveyed.

Dr. WILKINS was of the opinion that a portion of the cerebrum remained intact in these frogs, as they had made an attempt to get away, which action involved a series of movements, implying volitional power, and volitional power cannot exist with no portion of the cerebrum intact. In a frog with the entire cerebrum removed, on stroking the flanks a single croak is elicited, but the debilitated condition of these frogs may explain the absence of the sound. Dr. Mills had expressed a doubt about frogs swallowing each other, but the speaker thought that he was mistaken. He had more than once, in his own laboratory, upon opening frogs found bones in their stomach, and on one occasion he had positive evidence that frogs do eat each other, for on hearing a splash and a croak he hurried to where the frogs were kept, and found one frog with the hind legs of another sticking out of his mouth, and which he immediately removed. He thanked Dr. Mills for his demonstration, and hoped that he would bring similar cases before the Society in future.

Dr. ADAMI, referring to the length of time that the frogs had lived, quoted a Russian observer who kept a pigeon alive a whole winter after the removal of the cerebrum. He further suggested that as an explanation of the double movements spoken of by Dr. Wilkins, the severity of the stimulus was sufficient to account for it.

Dr. MILLS, in reply, thought that Dr. Wilkins was confounding the actions of frogs with the cord only remaining with those, as in the present case, with cord and medulla. Whether it would turn out that these frogs had the whole cerebrum removed or not, he had certainly seen cases, in which the whole cerebrum had been removed, act in a manner similar to these.

Complete Double Ureter.—Dr. ADAMI read

the report of the case, and showed the specimen.

Although the condition of multiple ureter is one of comparatively frequent occurrence, it would seem that in nearly all the cases recorded of this abnormality, fusion of the ureters, forming a single canal, had taken place before perforation of the bladder wall. The entrance into the bladder of accessory ureters by separate openings is a condition which authorities on the subject are unanimous in regarding as extremely rare.¹ Gangolphe² states that in his search of medical literature, he was able to find only two examples. His search must have been incomplete, for we have met with about a dozen recorded cases in all—sufficiently few, however, to merit that the two cases in hand be described.

Of these, one was discovered in a recent autopsy at the Royal Victoria Hospital, on the body of a man aged 65. The right kidney in this case was normal; the left exhibited more than one abnormality. There were two renal arteries. The upper, of small size, was given off from the side of the aorta just above the level of the coeliac axis. This passed into the substance of the cortex³ of the upper part of the kidney upon its anterior and upper surface, and half way along its course gave off the left supra-renal artery. The main renal artery left the aorta at its normal point of origin, and divided into three branches, of which the lowest passed in front of the renal vein, and sub-divided into three branches.

The kidney presented two pelves. The ureter of the upper one, which was the smaller, passed down behind the vessels, and crossed in front of the inferior ureter. Half an inch before reaching the bladder wall the ureters became fused externally, but at the same time the canals remained distinct. It was not possible to pass a pin probe from one to the other, nor could fluid injected into one ureter be found to pass into the other under any conditions. The ureter given off from the lower pelvis may be considered as the main duct, inasmuch as it was slightly larger, while its opening into the bladder was in the usual position, and corresponded to that of the single ureter of the right side. The superior and accessory ureter opened into the bladder by means of a small, but distinct, slit-like aperture, situated half an inch below, and to the inner side of the main orifice in the line between that and the urethral orifice.

The second case is a specimen obtained from a female body by Dr. Shepherd, of McGill University. This has, for many years, been in the Museum of the Medical college, and has never been recorded.

¹ Klebs *Path. Anat.* ii, page 678 (1876); Rokitsansky *Path. Anat. Syd. Soc.* ii, p. 211; Foerster *Path. Anat.* p. 523 (1865).

² Lyon Médicale, No. 26, 1882.

³ An artery piercing the cortex is said to occur in 1 in 7 bodies examined.