The urine should be carefully tested for sugar and albumen—the specific gravity is usually much below normal. I have found injections of one-fortieth grain of atropine to moderate the excessive salivary secretion; and, as the digestive powers are usually good, cod-liver oil, with phosphorus and steel, are undoubtedly useful.

ON THE STRUCTURE OF THE MATRIX OF HUMAN ARTICULAR CARTILAGE.

By H. A. REEVES, F.R.C.S.,

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HAVING for some months past been engaged in the study of joints, I have had occasion to apply various methods, too numerous to mention here; but I wish to bring under the notice of histologists some means by which the demonstration of the structure of so-called hyaline cartilage may readily be accomplished.

The perusal of Dr. Thin's paper on the Structure of Hyaline Cartilage (*Quarterly Microscopical Journal*, January 1876) stimulated the conviction which I have long held and taught as to the uniformity of structure; and I have endeavoured to convince myself of the existence of normal fibrillation in human cartilage, if it were possible.

Some weeks ago, I placed the fresh articular elbow-ends of the humerus, ulna, and radius of a woman aged 65, whose arm had been amputated for the results of senile gangrene, in a 0.5 per cent. silver solution for ten minutes. They were then removed and exposed to the light in the dry state (*i. e.*, without being placed in any liquid) for nearly three days. I had intended to examine them at once, but other work prevented it. On making horizontal thin sections, and examining them first as they were and without a cover-glass, and subsequently other similar sections in glycerine, I was struck with the appearance of straight bands running in various directions and planes, separated by bright but somewhat interrupted lines, which in some parts appeared to be made up of minute round elements, reminding one of the "elastic grains" described and figured by Ranvier. I must mention that the cartilages were washed in ordinary water before immersion in the silver, and that the capitellum was rubbed with a clean towel, in order to get rid of adhering synovia. My object in doing this was to avoid any false appearances caused by the deposition of silver in the synovia and the subsequent shrinking of the latter.

Thinking that this appearance might perhaps be due either to the age of the woman or to the fact of the limb having been so long inflamed, or to the change effected during the three days the cartilages were exposed, I examined the cartilages of younger people very shortly after removal, fresh and without any reagent, and also after staining in gold, silver, and aniline dyes; also in salt solution. I almost invariably recognised the same appearances; but they are not so distinct in fresh as in stained preparations. The fibres are perfectly straight, in this respect and in others differing from those figured by Dr. Thin of the kitten and sheep. In some of the sections, rounded, oval, and irregular figures—probably the transverse sections of similar fibres—were visible; but on this and other interesting appearances I intend to dilate more fully ere long. It is important to note that these appearances are not in any way artificial or due to the methods used, as perhaps may be said of the methods Dr. Thin employed, and of those of Tillmanns and Baber. The fibrillation is a continuous right-lined one, differing much from that figured by Tillmanns and Baber. Once recognised on stained sections, they are readily made out in fresh ones.

The gold method I employed was the following. Fresh articular ends of bones were placed for twenty minutes in a 0.5 per cent. auric chloride solution. They were then allowed to remain all night in a 0.02 per cent. solution, and in the morning were removed and exposed to the light in the dry way all day. In the evening, horizontal sections were made and examined.

I may add that, after taking every possible precaution to avoid fallacy in silver preparations, I observed figures very similar to those represented by Tillmanns, which he deems artificial, of which more anon.

Conjunctival End-Bulbs of the Gold-Fish.—In osmic acid preparations of the conjunctiva of the gold-fish I have observed end-bulbs, similar to those first discovered by Krause, which are of a somewhat complicated structure. They will be figured and described shortly. So far as I have been able to seek, I have not come across the mention of their existence in fishes.

Parasites in the Cray-Fish, Newt, and Earth-Worm.—Some years ago, when working, through Professor Huxley's courtesy, in his labora-

tory, I noticed under the microscope peculiar oval bodies in the muscles of *Astacus fluviatilis*. They only occurred in one specimen. I showed them to two or three gentlemen, and at the time referred to the works of Cobbold, Küchenmeister, Von Siebold, and other helminthologists, but could not find any description to correspond to the bodies observed. I cannot be more precise in the description, as the preparations are now spoiled; but I direct attention to the fact, as the cray-fish is largely eaten, in order that some one interested in the subject may investigate the matter.

On laying open the abdomen of a young newt, I observed what appeared like a hair in lively motion. Under a low power, it looked like a small thread-worm; but its motions were too lively to permit of study. My instruments were quite clean, and I am sure that the creature did not get into the abdomen after the latter was opened. It was found near the posterior part of the abdominal cavity; and, as I was dissecting under the microscope, I should have noticed it at once had it been introduced *ab extra*. Had it been swallowed, and then perforated the intestine?

On placing a portion of the segmented organs of an earth-worm under a quarter inch, I noticed, coiled up, what looked like trichina spiralis; but it was not encysted.

I regret very much that I cannot be more accurate in my statements, not being well versed in helminthology; but, crude as these observations are, they may induce some one with more knowledge to inquire into and discover more of a subject which may turn out to be of importance.

HYDATID OF BRAIN: CHRONIC MENINGITIS: SEROUS EFFUSION: APOPLECTIC SEIZURE: DEATH.

By W. H. MACNAMARA, M.D.,

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PRIVATE J. F., 106th Regiment, aged 37, in service seventeen years, principally Indian, had head-symptoms, attributed to the effects of sun in 1864. He was frequently in hospital with remittent fever, and several times with chronic rheumatism. He had had no trouble with his head since 1864. At 5.30 P.M. on September 19th, he was seen by a comrade; he seemed all right, but had been drinking. About half an hour afterwards (6 o'clock), he was found naked in a bath-room, with his head in water, to all appearances dead. Artificial respiration brought on hissing breathing. Dr. McEwen saw him about 6.30, and found him insensible; pupils dilated; breathing laborious and hissing; pulse quick, but firm. His bowels were moved. His feet and hands were quite cold. Warm bottles were applied to the hands and feet, and cold to the head. When I saw him a quarter of an hour afterwards, he was in the same condition, but with twitching of the muscles of the arms and stiffness of both legs. Epileptiform seizures came on every ten minutes or quarter of an hour. No smell of liquor, enlargement of the heart, or sign of atheroma of the arteries, was detected. About 8.20, the temperature began to rise rapidly; at 8.45, the thermometer registered 106.6. Respiration became quicker and more laborious; the epileptiform seizures more frequent and violent. The pulse remained firm. Urine was passed freely. The patient was packed in wet sheets; ice applied to the head. The temperature was gradually reduced. The spasms became less frequent, but the pulse became weaker towards morning. The wet sheets were discontinued. Brandy and beef-tea were administered by the rectum. The patient gradually sank, and died comatose at 7.25 A.M. on September 21st, about thirty-six hours after the attack.

POST MORTEM EXAMINATION, twenty-eight hours after death.—The membranes and sinuses of the brain were congested. The dura mater was thickened, and the visceral and parietal layers of the arachnoid adherent in the vicinity of the superior longitudinal sinus. A good deal of serum escaped when the medulla oblongata was cut across. There was considerable serous effusion on the surface of the brain under the arachnoid. The brain-substance was soft; its cut surface was glistening, a large quantity of serous fluid oozing from it. There were no blood-clots. The ventricles contained but a little fluid. A cyst, about the size and shape of a pigeon's egg, was found in the substance of the left hemisphere, on the outer side of the corpus striatum; it was attached to the brain-substance by areolar tissue and blood-vessels. The capsule was thick, opaque, and calcareous; its contents were fluid. I have not had them examined microscopically. There were no parasites in the intestines.