bed. There was no paralysis of motion or sensation during her sickness, nor were there any convulsions. Dr. L. Richmond, of Derby Line, Vt., was with her constantly during the last two weeks of her life, and almost everything was tried which promised even temporary comfort. Opium and chloroform were her best friends. Chloral, bromide of potassium, belladonna, conium, cannabis indica, valerian and many other drugs were tried with very little benefit. There was no autopsy.

TWO CASES OF EXTRACTION OF A CYSTICERCUS FROM THE HUMAN EYE.

Shown at the Berlin Medical Society, Nov. 22, 1871, by Dr. J. HIRSCHBERG. Translated for the JOURNAL, by B. JOY JEFFRIES, M.D., from Virchow's Archiv, 1871.

THE first case was interesting from the difficulty in operating, the second from the complete success of the operation. In the former the worm was deep in the vitreous, in the latter in the anterior chamber.

In the first part of November, 1871, a woman, 23 years old, applied to me. She was healthy and sound otherwise than that for the last year she had suffered from some defect of vision of the right eye, which at present allowed only fingers to be counted with difficulty at a short distance. The globe was unaltered, and in the still transparent vitreous I found a large, quite active cysticercus. As we know, such an eye must be lost, and there is even danger of sympathetic trouble in the other.* Thrice I have been forced to enucleate an eye holding a cysticercus, and thus had opportunity of demonstrating the anatomical changes produced by the parasite; and I have expressed the opinion that in all these cases, *when advanced*, this operation was preferable to attempts at extraction. In my present case, however, the conditions seemed sufficiently favorable, and the retention of the form and shape of the globe so important for the woman, still young, that I decided on extraction according to Graefe's plan.

The patient was lying, without anæsthetic, on the bed. I made the lower sclerotic section as if for cataract extraction, then did an iridectomy, opened the anterior capsule largely and evacuated the perfectly transparent crystalline fully and slowly. (Upon the last great stress should be laid.) I then let the patient sit up, and entered the vitreous with a little hook by which I

drew, with great difficulty, the worm in its surrounding membrane forwards till it was seen by the eye. The patient's head was now bent downward whilst I depressed the edge of the wound, when the entozoon slipped out. The wound healed *prima intentione*. Now, on the thirteenth day, the eye is perfectly quiet and its form completely retained.

The second case is in a certain way important in reference to the topographical seat of the cysticercus. The presence of the worm between the lamellæ of the cornea was stated by Appia, based on a briefly related observation.* This, however, was doubted by competent authors.† My observation shows how an intra-lamellar (corneal) position of the worm may be simulated, when the animal, living free in the aqueous humor, occasionally fastens itself to the cornea. It is of interest also to notice that both parasite and host were relatively young—the former twelve weeks and the latter two years.‡ (Comparing the size of the entozoon in this and the former case with the sizes given in my previous accounts, and we shall get an approximate idea of the relations of growth of the cysticercus in the human eye.)

In March, 1871, a small boy was brought to my clinic who had suffered from inflammation of the left eye for three months. The mother had noticed a white spot upon it for the last four weeks. The eye was unaltered in size and shape, but showed marked pericorneal injection, as in severe iritis, a disease as we know that scarcely occurs spontaneously at so early an age. The cornea was clear and its anterior surface regular. In its centre was a grayish spot of about 1" diameter, which lateral illumination showed to be a delicate spherical vesicle with central white spot. In front of it was certainly a thick layer of corneal tissue; whether a thinner layer also was behind it, could not at once be decided. The aqueous humor was muddy, the pupil small and still undilated three quarters of an hour after instillation of a solution of atropine. I attempted at once to extract the worm under chloroform. On

* Archives d'Ophthalmologie, par Jannain, July and August, 1853.

† Zehender's Handbuch, i. 228, Note 2. Weckers, Book 1., 453. Appia's idea would not tally with the theory that the cysticercus germ reached the inside of the eye through the circulation. Compare the author's *résumé* of the literature of this subject in the Wiener Medic. Rundschau, Jan., 1870.

‡ Graefe's Archiv., 12, 2, 174. He found in his 80 cases of intra-ocular cysticercus (among 80,000 patients) that the youngest host was 8 years old. I extracted a cysticercus from the lower lid of a child 3 years old. Berl. Klin. Wochenschrift, 1870.

* Compare this Archiv xlv. Also Knapp and Moos, Arch. for Eye and Ear, i. and ii. Also, Sitzung. bericht. Berl. Med. Gesellschaft.

applying the speculum, the worm changed its place and moved free in the aqueous chamber. Instead, therefore, of removing the anterior lamella of the cornea as I had intended, I made a linear cut below with a lance-knife in the cornea, and removed the neat little cysticercus, which at once projected its head-piece. With pressure bandage and atropine the wound healed in two days, and the eye showed no irritation. Vision is now at any rate (Nov. 22, 1871) normal. A slight anterior synechia next the unimportant scar is all that remains.

Often as the cysticercus is with us found inside of the human eyeball,* yet curiously enough it is rarely seen in the anterior chamber. Graefe saw only three cases, and the number of successful extractions has, since Schott's noted communication, remained very small. Yet these cases are of great therapeutic value, since the eye, which otherwise is sure to be lost, may, by a simple operation done at the right time, be saved with certainty.

Reports of Medical Societies.

BOSTON SOCIETY OF MEDICAL SCIENCES.

EDWARD WIGGLESWORTH, JR., M.D., SECRETARY.

DEC. 26th, 1871.—The Society met at the house of Dr. Dwight, Dr. White in the chair.

Effects of Administration of Hydrocyanic Acid.—Dr. Amory read a paper to show that death from prussic acid intoxication was due to some other cause than simply paralysis of the muscles concerned in respiration, and suggested that this active poison produced some change in the physical character of the blood, whereby the vital functions could not be maintained.

This he proved by certain experiments in which the process of artificial respiration was continued until after the cessation of the heart's pulsation. He also called attention to the fact that the pathological appearance after death was different in those animals poisoned by prussic acid if artificial respiration was thus maintained. He noticed, also, that rigor mortis did not occur so soon after death in those animals poisoned by prussic acid, in whom artificial respiration was used, as in those animals in whom no artificial respiration was used. In this connection, Tardieu was quoted as

affirming that rigor mortis occurred very soon after death in animals and men dying from a poisonous dose of prussic acid.

The details of these experiments were as follows:—

Exp. I.—Administration of acid. hydrocyan. dil.* (U. S.)—gtt. xv., or about a grain of the anhydrous acid—to a dog (20 lbs. weight), subcutaneously; artificial respiration; death; *without ether*.

After tracheotomy, a flexible tube was inserted in the trachea of a dog, and the above dose then introduced under the skin on the inside of left thigh. In half a minute afterwards, symptoms of prussic acid intoxication, such as embarrassed respiration and muscular twitchings, were observed. Artificial respiration† was immediately instituted and maintained eighteen to twenty times a minute. During the next half hour slight symptoms of muscular spasms were observed only twice, and were entirely relieved by more rapid movements of the bellows. There was no dilatation of pupil nor protrusion of eyeball. Surface of skin grew gradually cooler, the cardiac pulsations weaker and more frequent, and sounds of coarse mucous râles became quite distinct. As soon as the cardiac pulsations became imperceptible (in about 22 minutes), the thorax was opened, and the right lung found contracting and expanding in accordance with each movement of the bellows. The left lung did not fully expand, for the tracheal tube had been pushed down below the bifurcation, thus giving air mostly to the right lung.

Post-mortem Appearances.—Ecchymotic spots quite marked in left pulmonary tissue, and but slightly on right side, and this only in the posterior portion. (The dog had been lying upon the back.) As soon as the artificial respiration was discontinued, the ecchymosis gradually increased. The walls of heart were relaxed, and the right ventricle contained dark fluid blood, the left ventricle bright arterial blood; both auricles contained blood. The blood which oozed from cut pulmonary tissue was bright red. The lower and posterior portions of left lung were slightly oedematous. The calvaria and the vessels in the superficial membranes were slightly injected with blood; in some this was dark venous, in others bright red.

No muscular rigidity occurred during three hours after death, and the body was then thrown away. This peculiarity of the

* Graefe in his *Archive*, xii., 2, 174.

† Hirschler, *Arch. f. Ophth.*, iv., 1, 113.

* Should contain two per cent. of anhydrous acid.

† With machine for the purpose.