showed a similarity to the ungulates, in not having a highly developed area, which would suggest a true macula. Although light perception was more acute centrally, it was, however, quite serviceable in all parts of the retina. If it were possible to secure a careful pathologic examination of these eyes, Phillips believes that it would be found that the extraordinary ability of ocular rotations was due to absence of a well-defined macula, which fact would afford evidence in support of the opinion that the macula is absolutely necessary only for binocular vision at the near point.

J. E. Colburn, quoted by Smith, reports a case of involuntary movement in one eye in an engraver of 28. He was accustomed to use his loup before the left eye with his tools distributed to his right side. He used his graver with his left hand and could pick up any tool desired on the table near him without changing the relation of his eye to his work. He had also acquired the habit of fixing with his left eye and rotating his right in any direction required, though not so rapidly and so steadily as when the loup was in position before the left eye. As a result of these curious ocular gymnastics there was produced an attack of cyclitis in the right eye, eight years before, which had recurred three years later, and again in two years. Each attack was more protracted than the preceding. Colburn also mentions the case of a girl, aged 18, who, following an injury to her head in a runaway accident, exhibited rotary nystagmus over which she had perfect control. However, when her attention was not fixed, the oscillations were continuous and considerable.

Such power as the foregoing would indicate inhibition of one eye with volitional innervation of the other, indicating, as Smith sets forth, that the coordinating centers of the two eyes must be influenced along different paths or by different stimuli, or by cortical impulses coming from different areas. He describes a so-called "Z-tract," the fibers of which extend from the neighborhood of the precentral sulcus—the motor area for the eyes—downward between the caudate nucleus and the lenticular nucleus (probably some fibers pass through the corpora striata), thence through the thalamus to the corpora quadrigemina and to the nuclei of the third, fourth and sixth nerves. He notes that nystagmic movements have been produced by passing a probe into the region of the corpora striata and optic thalami. It is remarked that incoordinated movements of the eyeballs are never intimately connected with lesions of the upper and more peripheral parts of the brain. Cerebral hemorrhage involving the basal ganglia often produces conjugate deviation of the head and eyeballs toward the unparalyzed side. Smith also calls attention to the fact that conjugate deviation of the eyeballs occurring as a symptom of cerebral lesion in the region of the basal ganglia is usually indirect and transitory, showing a temporary disturbance only in the tract of fibers connecting the cortex with a center of the brain. The natural conclusion is that in the projection system anatomic examination seems to indicate the connection between the cortical centers of the frontal lobe and with ganglionic centers of the thalamus, and of these with the nuclei of the nerves of the ocular muscles, and later with the coordinating centers.

ABSTRACT OF DISCUSSION.

DR. M. WIENER, St. Louis, agreed with Dr. Pyle on the necessity for correcting the error of refraction in these cases of nystagmus. He said that about a year ago he had occasion to examine a lady, aged 39, with unilateral nystagmus. The

left eye on being fixed was perfectly quiet, while in the right eye there was marked lateral nystagmus. The patient was myopic and astigmatic, but more in the right than in the left eye; whereas the same correction had been given for both eyes. On giving a full correction the nystagmus almost entirely disappeared.

DR. A. E. DAVIS, New York, referred to a case of a young girl 7 or 8 years of age, who could voluntarily produce a rapid horizontal nystagmus. Both eyes were involved. There was no refractive error of importance. Dr. Davis said that the patient still had this ability and she was now 17 or 18 years of age. The fundus of the eye was normal and the patient complained of no headache or other ocular symptoms.

DR. WALTER L. PYLE, Philadelphia, called attention to the fact that in spite of all efforts to concentrate and fix the eyes there was still an unconscious, but yet appreciable movement at all times. The assumptions of the older psychologists that there was a definite visual "point of regard," Dr. Pyle said, was now challenged on very convincing experimental evidence. Recently Prof. Raymond Dodge had claimed that instead of a "point" the center of visual interest was a very appreciable "area." This thesis he supported by a few very simple subjective experiments. Dr. Pyle also referred to the authentic reports of cases of voluntary iris, in one of which, by Bechterew, there is described a unilateral voluntary control of the iris. He had found at least a half dozen bilateral instances of this phenomenon in ophthalmic literature. Dr. Pyle reiterated his belief in the importance of the careful correction of refractive errors in all cases of nystagmus, even when there is associate cerebrospinal lesion.

FRACTURE OF PATELLA,

WITH SKIAGRAMS OF RESULTS OF TREATMENT BY
SUTURE.*

J. M. BATCHELOR, M.D.

House Surgeon, Charity Hospital.
NEW ORLEANS.

The literature concerning fractures of the patella up to ten years ago is chiefly remarkable for the constantly changing view there represented concerning the proper treatment of the condition. The evil results of patella fractures vary from simple restriction of joint movement to complete loss of function with ankylosis. Such results, partial recovery and impaired function are dependent on two factors: First, improper coaptation of the fracture, and second, prolonged fixation of the joint with resultant atrophy of the quadriceps extensor and shrinkage of the joint capsule. The former condition being dependent on interposition of periosteal tabs, contraction of the quadriceps extensor and intra-articular hemorrhage, rendering it difficult to approximate the fragments.

As early as 1868 v. Volkman attempted to secure close apposition of the fragments by subcutaneous suture, which, with some modification, was later practiced by Kocher, Ceci, Heusner and others, with the inevitable result of impaired function or, at best, a fortuitous union. After the introduction of the antiseptic period with Lister's attempt in 1878 to wire the patella by open suture, and with the subsequent perfection of aseptic technic, surgeons the world over have finally adopted the method of open suture as being the only method of removing the mechanical hindrances before mentioned.

I have operated in the past twelve years in eleven cases. My first operation was performed in 1897 and consisted in wiring the patella with silver wire. The patient in this case was admitted to the hospital May 17, after sustaining a fracture of the patella by indirect violence. He stated that two years before, fracture of

* Read before the Orleans Parish Medical Society, July 27, 1908.

Fig. 1 (First Series).—Skiagram of fracture of patella, showing a separation of $\frac{3}{8}$ in. Operation done under chloroform anesthesia.

Fig. 2 (Second Series).—Skiagram of the knee joint shown in Figure 1, taken fourteen months after fracture. Bony union has occurred.

Fig. 3 (First Series).—Skiagram of fracture of patella, showing separation of bony parts. Operation under local analgesia (Schleicht).

Fig. 4.—(Second Series).—Skiagram of knee joint shown in Figure 3, taken two years after fracture. Bony union complete.

the same patella had occurred and this had been treated by splint and bandaging. In this case, as in all others, with one exception, I allowed forty-eight hours to transpire before operating, so as to allow complete cessation of hemorrhage and thereby lessen the difficulty of operation.

OPERATIVE TREATMENT.

My subsequent experience in the second case, in which I operated immediately after the injury, convinced me of the advantage to be gained by a forty-eight hour wait before operation. In this second case the constant ooz-

ing of blood in the joint, rendering frequent sponging necessary, left me in some doubt as to the wisdom of closing the joint in which I had reason to believe a collection of blood would finally be left. My technic in all subsequent cases, as in the first, has been to confine the patient to bed for forty-eight hours after the injury before operating and during this time to fix the joint and apply an ice-bag. The difficulty of operation is much reduced by this wait, sponging being less necessary and much traumatism of the joint obviated.

During the entire operation it is my custom to run a 1 to 20,000 bichlorid of mercury solution through the joint, obviating the necessity for sponging and preventing sepsis. The suture has been, indifferently, catgut or kangaroo tendon except in the first case, in which the patella itself was wired with two silver wires. In every case immediate and complete closure of the joint was done and primary union resulted.

POSTOPERATIVE TREATMENT.

The postoperative treatment consisted in immobilization of the joint by a posterior gutter splint with confinement in bed for fourteen days, after which the patient was allowed to get up and walk, the leg remaining in the splint. The intra-articular pressure from weight-bearing I have found to aid greatly in overcoming stiffness of the joint and in causing resorption of adhesions that may have formed, and I believe it contributes greatly to restoration of the joint function. I have rarely found it necessary to practice passive motion for more than seven days.

In the skiagraphs (Figs. 1, 2, 3 and 4) of two of these cases, the first series (Figs. 1 and 3) were taken four weeks after the operation, and the second series (Figs. 2 and 4) were taken at periods of fourteen months and two years later, respectively. It will be seen that in each case in the first series (Figs. 1 and 3) of skiagraphs taken four weeks after operation there appears to be a separation of the fragments, in one case (Fig. 1) an apparent separation of at least three-eighths of an inch. It will be observed in the second series (Figs. 2 and 4) of skiagraphs that there is bony union in each instance. Three of the patients in these eleven cases were operated on under local analgesia (Schleich). In these eleven cases ten of the patients have perfect function of the joint, being able to flex the limb to the extreme and to mount a chair while standing close to it.

CONCLUSIONS.

My observations from the standpoint of these cases and of the skiagraphs of seven of them lead me to the following conclusions:

1. Bony union rarely takes place before thirty days.
2. Bony union is possible where there is, after suture, a separation of the fragments equal to three-eighths of an inch.
3. Whenever general anesthesia is directly contraindicated such patients may be operated on under local analgesia and bony union confidently expected.
4. The essential requirements of the operation are, first, preliminary fixation of the joint for from forty-eight to seventy-two hours to allow complete arrest of hemorrhage; second, suture of the lateral tear of the capsule, thereby restoring the reserve extensors and obviating the danger of atrophy of the quadriceps; third, absolute asepsis and immediate closure of the joint without drainage.

GENERAL PARESIS IN CHILDHOOD.*

ARTHUR WILLARD FAIRBANKS, M.D.

Assistant Physician for Diseases of the Nervous System at the Children's and City Hospitals; Instructor in Clinical Medicine, Tufts College; Visiting Physician to the Floating Hospital for Children.
BOSTON.

I wish particularly to preface this paper by the statement that my remarks apply to paresis in childhood and are based on a study of the disease at this period of life.

Paretic dementia, having its onset previous to the age of 16 years is, if one may judge from the space given to the subject in the text-books, of great rarity; and we find, in fact, that previous to the last fifteen years the paucity of cases reported in the literature seems to have justified the scanty attention accorded to the affection by the text-books.

Has this seeming infrequency been actual or only apparent? There are many factors that may explain the apparent but not actual rarity of this affection.

In the first place, we are dealing with an affection whose chief or most obvious symptoms are mental. I believe it is not an exaggeration to say that fewer medical men are conversant with the symptoms of mental disease and their significance, or inclined to give to such cases as come under their observation that inferential attention and study that they would devote to any other affection, than is the case in any other department of medicine.

Secondly, the disease is often extremely insidious in onset. There is rarely anything alarming to the average parent in the early months of the disease. The symptoms are ascribed to indifference, laziness, nervous irritability or ill temper. So gradual is the progress of the mental deterioration that the disease is usually well pronounced by the time the family physician is consulted; but even then the full import of the clinical signs and the significance of their duration may not be recognized. The pronounced clinical features of the affection, especially those of motor character, naturally more obvious to the general practitioner, are often ascribed to shock, or may be considered as the sequelæ of some preceding injury or disease. The parents are assured that the child's brain has been injured and that there is nothing to be done. The advance of the disease is so unobtrusive that the parents delay seeking special advice, and the child dies of some intercurrent disease, and the case is lost to science. In other instances the patient is committed to an institution at so late a period of the disease that, on account of the forgetfulness or indifference of the parents, or lack of thoroughness on the part of the history taker, the exact and early onset of the affection may not be apparent. I am convinced that it is a safe inference that all cases of mental disease in childhood actually antedate considerably the onset assigned by the family.

Finally, without question many cases have terminated their course in institutions, and others are at the present time inmates, that have not been and will not be reported on account of lack of interest or procrastination on the part of the medical officer or on account of the pressure of his routine work. When we consider

* Owing to lack of space, the article is here abbreviated by the omission of the report of a case. The complete article appears in the Transactions of the Section and in the author's reprints.

* Read in the Section on Diseases of Children of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908.