that while all of the requisite anatomic arrangements may be present in any given case, which are known to be essential for the visual performance, such as transparent optical media, physiologic accommodation, normal refraction, normal retina, together with normal optic nerves, and finally, physiologic visual cortices, yet unless the eye is stimulated to the proper extent at the beginning of the individual's career, the condition known as amblyopia exanopsia can and does ensue in a certain percentage of cases. It has been advanced as an explanation of this class of cases, that there is back of all other factors an inferior mental perceptivity, but this must be largely discountenanced by the undeniable fact that, after correction of any and all refractive and muscular errors, the individual's visual acuity rises to a marked extent if the corrective measures are instituted timely enough. Thus, it has been almost my invariable experience to note that in those cases of amblyopia exanopsia, occurring in youth in which the refractive and muscular errors have been overcome, the sight of the amblyopic eye soon rises to a perceptible extent, and ultimately vies with its fellow in visual acuity.

The case referred to in your editorial comments, quoted by Dr. W. B. Johnson, is but one out of many in which the amblyopic eye has assumed a marked visual improvement, when necessity compelled it so to do by the accidental loss of the good eye, and, as stated by you, is strongly suggestive of the probability of the occurrence of amblyopia as a sequence of disuse. Many good authorities are wavering in the balance with respect to this question; but it seems to me that the preponderance of evidence is in favor of the occurrence of amblyopia consequent upon disuse. It is, of course, not difficult to collaborate a series of cases in which enter complicating elements serving to obscure the diagnosis. Time and again, after tenotomizing the contracted internus for convergent strabismus in youthful cases and applying proper optical correction to the hyperopia present, I have noticed an eye that was prior to such measures decidedly amblyopic, assume a degree of useful vision, which progressively advanced in power, and to my mind is strongly conclusive that the amblyopia followed disuse.

Now, it must be fully understood that the retina once educated to the full appreciation of images formed by the dioptric system are not comparable to the primitive untrained retina, for it is conceded that when the retina have acquired their maximum development, images may be excluded for protracted periods without impairing their sensitive, impressionable nerve elements, as is palpably demonstrated by cases in which the removal of hyper-mature cataracts serve to restore fairly acute vision. And again, microscopists, engravers and others, compelled in their work to exclude the object perceived with one eye, do not necessarily impair their vision by so doing. So, too, with cases of opaque cornea in which an iridectomy restores vision. Squint in cases of opaque cornea is explicable on the ground that there is in all cases a tendency towards binocular fusion, and if there is an opacity in an isolated part of the cornea, there is a strong desire on the part of the individual to direct his eyes in such a manner that the clear part of the cornea will be brought into use, and thus enable him to bring the most sensitive part of his retina, the fovea centralis, into play, thus taxing the muscular mechanism to an extreme degree, which is ultimately followed by a yielding of the weaker muscle and rotation of the eye towards the preponderating muscle.

One of the strongest arguments against the acceptance of a cortical defect lying at the bottom of amblyopia, is the fully accepted fact of semi-decussation of the optic nerves in the higher vertebrates, for in view of this anatomic provision it would be necessary that both cortices should be

seriously impaired, which would cause either complete obscuration of vision of both eyes, or double hemiopia instead of an amblyopia of the one side, as is so frequently found; and it seems to me that a better and more plausible explanation of amblyopia, granting the retina is normally perceptive, would be defective conduction of the optic nerve fibers, and especially of that portion of the nerve styled the papillo-macular bundle, which is formed of separate nerve filaments connecting the macula lutea with the brain. Assuming that these cases of amblyopia reveal no marked pathologic changes ophthalmoscopically, our knowledge of the distribution of the optic nerve fibers enables us to determine with a certain positiveness the site of the lesion in the optic tract, providing the same is due to a break in the conduction. Thus in every case in which the defect is in one eye, or in asymmetrically placed defects of both eyes, the lesion lies in the optic nerve anteriorly to the chiasm, inasmuch as all breaks in the conduction posteriorly to the chiasm result in symmetrical visual defects, and for the same reason complete blindness of one eye, the other being normal, must be referred to a disturbance in front of the chiasm.

This and much more might be stated in support of the theory that amblyopia exanopsia should be classed in the same category with cases of hemiopia, either total or incomplete. Very respectfully,

JAMES A. LYDSTON, Ph.D., M.D.

Chicago Dec. 11, 1893.

Abdominal Dropsy.—Sixty-seven Tapping Operations on One Patient.

MARION, OHIO, Dec. 15, 1893.

To the Editor:—The following interesting case is worthy of report, I think:

Mrs. B., aged 80, from disturbed hepatic circulation has been afflicted with abdominal dropsy for the past eleven years. During the summer and fall of 1882 the abdominal cavity became so distended with the fluid that the lady was unable to walk, nor could she lie down, but was compelled to get what rest she could in an easy rocking chair. Drugs for carrying off fluids were tried with negative results. She finally consented to be tapped, and the operation was performed Dec. 23, 1882, for the first time. Great relief followed, and the patient was able to be up and around, but the fluid re-accumulated and she was again tapped seven weeks from the first operation. From that time until her death Dec. 3, 1893, she was tapped on an average of six times a year, in all sixty-seven times. The average amount of fluid obtained each time was six gallons, by measurement, making in all 402 gallons. The operations were performed with an ordinary trocar and canula.

Taking into consideration the age of the patient, and the number of years added to her life, the case presented is one of encouragement for the operation in abdominal dropsy. Although the fluid re-accumulated, after being tapped the patient was able to do considerable housework, and at times had taken walks of one and two miles. During the eleven years the lady was under my care, no attempt was made at systematic medication for her troubles, because of an irritable stomach that revolted at the use of medicine. It is difficult to tell how long she would have held out, as she was never confined to the bed but for a few days at a time, and death was caused by an attack of la grippe lasting about one week.

Postmortem examination revealed a liver enlarged to about twice its natural size, with shrunken and distorted vessels, and a small ovarian tumor attached by a pedicle to the left ovary.

F. W. THOMAS, M.D.