

Johnson (W. B.) *al*

SUPPRESSION OF THE VISUAL IMAGE.

ALSO

A PERMANENT MAGNET

FOR USE IN

REMOVING FOREIGN BODIES IN THE CORNEA.

By WALTER B. JOHNSON, M.D.,

PATERSON, N. J.

presented by the author

[Reprinted from American Ophthalmological Society Transactions, 1893.]



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In convergent strabismus, except the squint be of the alternating variety, there is present an amblyopic condition affecting the squinting eye, in which there is more or less marked diminution of the vision.

Hypermetropia was thought by Donders and many other writers to be the most frequent cause of convergent squint, constantly exciting excessive efforts at accommodation, resulting in convergence, confusion of images, and subsequent mental suppression of the visual image of one eye, finally terminating in an amblyopic condition, in which the ability to see varied, vision being more acute in some cases than in others.

It has also been claimed by Schweigger, Alfred Græfe, and others that amblyopia is not caused by squint, but exists as a primary or congenital condition, probably caused by some change, structural or otherwise, in the eye itself or in the nerve centers. This produces convergence in consequence of confusion of images caused by deficient sight.

The variety of amblyopia or suppression of the visual image in question is apparently a purely physiological condition; ophthalmoscopic examination indicates a perfectly normal fundus, although the eye is generally hypermetropic. The nerve centers must certainly be affected by the continued mental suppression of the visual image and their functions finally practically destroyed. Unless an operation be performed, which results in re-establishing binocular fixation and fusion of the retinal images, the amblyopia persists, being a progressive mental condition made permanent in the nerve centers by their loss of use and exercise of the power of vision. Amblyopia may be and sometimes is overcome, when it is first established, by a proper correction of visual defects; the commencing squint and the increasing loss of sight may thus be entirely prevented without resort to operative interference. Squint generally

appears at an early age, when satisfactory examination is not practical; the amblyopic condition may be present, but not demonstrable; for that reason the time of loss of vision cannot be definitely ascertained and the question of the probable presence of amblyopia before the onset of the squint, or of its onset as a result of the squint, is very difficult of solution and proof. It is presumed that an amblyopia may come on as a result of squint and persist forever after, even though the eyes are brought to a state of apparently perfect parallelism by operation; the vision in the amblyopic eye rarely, if ever, becomes equal to the vision of the fellow eye. The squinting eye cannot, does not, and will not enter into the visual act, and has no ability to, and can take no cognizance of any object which appears on its visual axis; the power of suppressing images having become a condition, and the vision decreased to such an extent that the eye is practically sightless.

The case here reported, which presents the character and history of many other cases of concomitant convergent strabismus, shows conclusively that whatever the change which led to the loss of vision, it was not structural either in the eyeball or the nerve centers, but was in all probability a pure case of amblyopia which resulted from the long-continued mental visual suppression induced by the confusion of images caused by the loss of parallelism of the eyes, and that the amblyopia was in all probability the result of the squint.

The amblyopia having entirely disappeared after the loss of the fixing eye, when all the existing conditions were changed, indicates the certainty that in this case amblyopia was a condition and not a disease. The remaining eye, which had been apparently almost sightless, having become excessively amblyopic, after instruction and exercise designed to assist the visual effort, gradually increased its power of vision until perfect sight resulted and the sensitive point returned to the region of the macula lutea. The results of any past amblyopic condition entirely disappeared, the eyeball itself and the nerve centers returning to a perfect state of health and visual acuity.

T. McK. Age 19, June, 1887. File forger. Has been

cross-eyed since he was three years of age, and states that during his recollection he had been unable with the left eye to discern any object and define its character.

He has a manifest hypermetropia and constantly fixes with the right eye.

R. V. = 20/15 20/15 w. + 1.25 D.

L. V. = fingers at 6", no improvement with glasses.

The fundus was apparently normal.

He applied for treatment, intending to have his squint corrected by tenotomy.

June 13th, while working at forging, a hot file flew from his tongs and struck him in the right eye.

Two hours after the injury the eyeball was examined, a large wound of the globe was discovered, having extremely ragged edges and involving almost the entire globe, cutting through the cornea, iris, lens, and sclerotic in the ciliary region. Enucleation was advised and performed in the usual manner in the afternoon of the same day.

June 18th. The patient was doing nicely and stated that he believed he could see better.

L. V. = fingers at 3'.

Ophthalmoscopic examination discloses a perfectly normal fundus and a hypermetropia of +1.50 D.

June 19th, was first instructed in locating letters in the test card. His field of vision was limited to any single object upon which his attention was fixed; if placed directly in front of a test card with the region of the macula in the axis of vision he could see L. V. = 3/200. If allowed to read the letters on a plane of his own choosing, bringing the hypersensitive retinal spot into use and wearing +2 D., the test card would appear to be 13 inches to the left of its actual place of hanging; but he was able to read 2/70, and as his instruction was continued he read 2/15, and at times 2/12 and 2/8, the letters being apparently moved 10 inches to the left of their actual position. He finally read 4/15.

June 20th, after 15 minutes instruction, he was able to read L. V. = 20/30 w. + 1.25 D. on a new test card, never seen before, stating that in order to see the card he was obliged to look

to the left of it, although he apparently saw it directly in front of him; he could read 20/200 without a correcting glass; although there are six cards on the test frame, he insisted that he could only see one of them at a time, and that in its false position.

June 21st to 25th. He has been instructed daily, with constant improvement in the field of vision and in the rapidity with which he could locate the letters and cards, +1.75 D. having been ordered and worn constantly.

June 26th. He is able to select letters on any of the test cards and now locates the card in its exact position and can see all six cards at once without special effort. His vision for near was tested for the first time since the loss of his eye with +1.75 D. He was able to read Jaeger No. 9, but in locating a word on the test paper with a pointer he would point considerably to the left of its actual position.

July 1st. The improvement has continued daily since last date. He can read 20/15 with his correcting glass and Jaeger No. 1 at 12 inches, locating the words with a pointer in their correct place. He declines to accept the +1.75 D. He had been wearing and was ordered +1.25 D. His visual field is normal.

January 23d, 1890, nearly three years after the loss of his eye. His vision = 20/15 with or without +1.25 D. He reads Jaeger No. 1 with or without any correcting glass, although he prefers his +1.25 D. for reading.

He never has had any pain or discomfort or any blurring of his sight since last examined, and has worked at his trade constantly since that time.

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The magnet is presented as a useful instrument which can be manufactured at a very small cost and is always ready for immediate use.

It is made from a bar of the highest quality steel, which is turned down until it is shaped like a cone-pointed cylinder slightly elongated at each end and very highly tempered, six inches in length, each cone measuring one and one-half inches, the cylinder one-half inch in diameter, and three inches long.

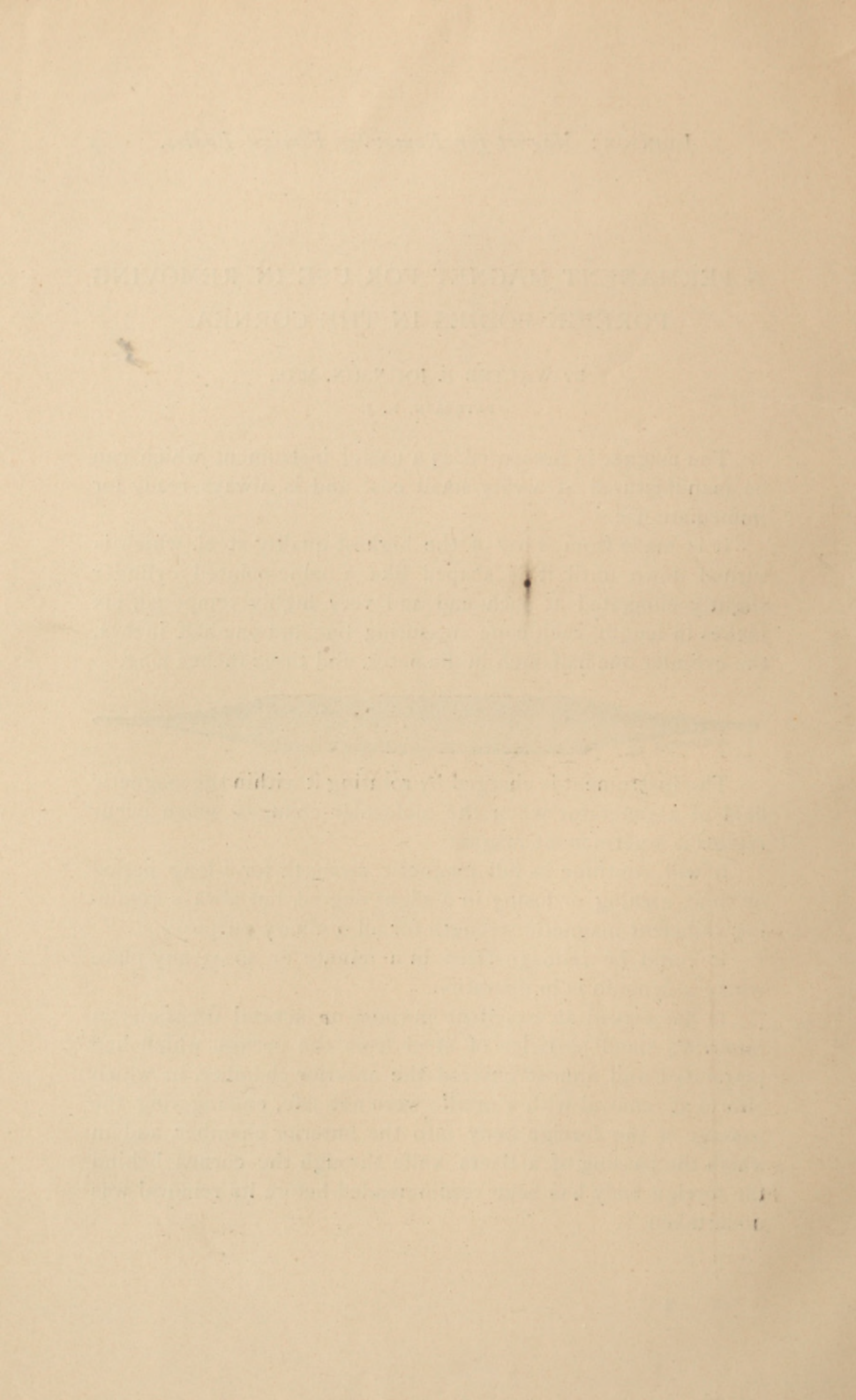


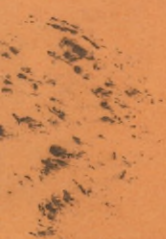
The instrument is charged by rotating it within the magnetic field of a generator when the molecular changes which occur render it a permanent magnet.

It will continue in full magnetic strength for a long period of time, gaining or losing in a slight degree, but always retaining sufficient magnetic strength for all ordinary purposes.

It could be re-magnetized in a minute or so at any place where a dynamo is in operation.

It has served an excellent purpose on several occasions in removing small particles of steel from the cornea which had perforated and almost entered the anterior chamber, in which efforts at removal with a needle were not safe, endangering the passage of the foreign body into the anterior chamber, and in which the passing of a Baers' knife through the cornea behind the foreign body has been recommended before its removal was undertaken.





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