NOYES (H. D.)

Dr. B. Joy Jeffries.

SELECTIONS

FROM RECENT

OPHTHALMIC LITERATURE.

BY

HENRY D. NOYES, M. D.,

NEW YORK.

[*REPRINTED FROM THE N. Y. MEDICAL JOURNAL, JUNE*, 1873.]

NEW YORK:
D. APPLETON AND COMPANY,
549 & 551 BROADWAY.
1873.

PROSPECTUS FOR 1873.

THE MEDICAL PROFESSION

Of the United States have universally indorsed the NEW YORK MEDICAL JOURNAL as one of the *very best* medical periodicals published in the world.

THE

NEW YORK MEDICAL JOURNAL,

EDITED BY

WILLIAM T. LUSK, M. D.,
Professor of Obstetrics and Diseases of Women, in the Bellevue Hospital Medical College,

AND

JAMES B. HUNTER, M. D.,
Assistant Surgeon to the New York State Woman's Hospital, etc.

The contents of each number are—

I.

Original Communications from the very first writers of the Profession; articles which are widely circulated, and which leave their impress on the medical literature of the age.

II.

Clinical Reports from Hospital and Private Practice, American and Foreign; Records of Cases taken alike from the crowded wards of the hospital, and the daily life of the busy practitioner.

III.

Bibliographical and Literary Notes, carefully prepared and conscientiously written, of all the latest medical publications of the month.

IV.

Reports of the Progress of Medicine in the various departments—Obstetrics and Diseases of Women, Surgery, etc.

V.

Proceedings of Societies, in which all the leading questions of the day affecting the Medical Profession are thoroughly discussed.

VI.

Miscellaneous and Scientific Notes of whatever may be deemed of interest or profit to the readers of the *Journal.*

VII.

Obituaries of the honored dead of the Medical Profession, deceased during the previous month.

Such a journal, giving the latest movements in the medical world, and keeping pace with the advance of medical science, cannot fail to be a medium of usefulness to the entire Profession, and to establish its claim to be, in the highest sense,

A Monthly Review of Medicine and the Collateral Sciences.

A new volume of *The New York Medical Journal* commences in JANUARY, 1873, and all new subscriptions should begin with that date, so as to secure the ensuing volumes, complete.

Terms: Four Dollars per Annum.

A Specimen Copy will be sent on receipt of TWENTY-FIVE CENTS.

New York Medical Journal and Popular Science Monthly.....per annum,	8 00
New York Medical Journal and Appletons' Weekly Journal of Literature, Science, and Art.....per annum,	7 00

Remittances, invariably in advance, should be made to the Publishers,

D. APPLETON & CO., 549 & 551 Broadway, N. Y

SELECTIONS

FROM RECENT

OPHTHALMIC LITERATURE.

BY

HENRY D. NOYES, M. D.,

NEW YORK.

[*REPRINTED FROM THE N. Y. MEDICAL JOURNAL, JUNE*, 1873.]

NEW YORK:
D. APPLETON AND COMPANY,
549 & 551 BROADWAY.
1873.

SELECTIONS FROM RECENT OPHTHALMIC LITERATURE.

1.—*Du Zona Ophthalmique et des Lésions Oculaires qui s'y rattachent.* Par le Dr. Albert Hybord. [Paris—Adrien Delahaye, 1872, pp. 161.]

The above *brochure* gives a complete account of what is yet known of herpes zoster ophthalmicus. It is founded upon a review of ninety-eight cases, of which six are contributed by the author. The clinical features of the disease are so well known that they need not be here repeated; but the following statements, drawn from the large number of cases, are worth reading. The eruption takes place a few hours or days or even three months after the outbreak of neuralgia; in a few cases it occurs without any precedent neuralgia. In thirty-two cases, that is, one-third of the whole, the eye was not affected. In the remaining two-thirds, the ocular lesion was in the eyelids, conjunctiva, cornea, iris, or muscles, or lachrymal gland. The corneal diseases were vesicular eruptions, ulceration which might go on to perforation and suppuration, or simple interstitial keratitis. The pupil in a few cases was dilated. The iris and cornea were commonly inflamed together, and their inflammation presented itself in one-half the cases. Iritis may occur without corneal inflammation, while severe keratitis is accompanied by iritis.

In fifty-three cases, the herpetic eruption appeared on the nose, and in thirty-five of these the iris and cornea were inflamed. In only seven cases did kerato-iritis occur when the eruption was confined to the forehead. Mr. Hutchinson's remark about the association of kerato-iritis with the irritation of the nasal branches of the ophthalmic nerve is substantially verified. The reason is found in the fact that the nasal branch of the ophthalmic nerve supplies the filaments which enter into the ciliary nerves.

The most interesting part of the paper is the discussion of pathological anatomy. The disease we are considering belongs to the general category of herpes zoster, and several interesting autopsies are quoted—one case by Baerensprung was an infant a year old who died of pulmonary tuberculosis, and during forty days before death had herpes of the sixth, seventh, and eighth intercostal spaces of the left side. The cord was healthy; the sixth, seventh, and eighth intercostal nerves healthy up to the intervertebral foramina, where they became thickened and injected; the ganglia of the roots were enlarged, and the surrounding connective tissue presented in-

flammatory redness. By the microscope, unmistakable traces of inflammation were found in the ganglia and the roots of the nerves up to their place of junction. Substantially the same lesions have been found by Charcot in a case of zona of the neck. Weidner gives an examination of a woman who died of pneumonia while having an attack of herpes on the left shoulder and arm. On the sensitive root of the first thoracic nerve was found a small tumor of the neurilemma, which penetrated and separated the fibres of the nerve. It consisted of fusiform cells, and nuclei and corpuscles impregnated with phosphate and carbonate of lime. Weidner also gives another autopsy which conducts to our present subject: an old man, who had had zona ophthalmica, died five years after of pneumonia; at the dissection, the fifth nerve was found to be shrunken at its emergence from the pons Varolii, and the pia mater hyperæmic; and again there were contraction of the nerve and hyperæmia at its entrance into the ganglion of Gasser. In the ganglion the filaments of the nerve were dissevered from one another, and the interstices filled by a red and thickish liquid. The ganglion-cells were of unequal size, and contained abundance of yellowish-brown pigment: the connective tissue was replete with nuclei.

The most detailed autopsy in ophthalmic zoster is given by Wyss. The chief lesion was in the ganglion of Gasser, which was enlarged, softened, and injected. On its inner border was a red spot, one millimetre in diameter, looking like extravasation of blood, and the ophthalmic nerve was surrounded by bloody extravasation up to its entrance into the orbit. It was both thicker and wider than the opposite nerve, and of a soft, gelatinous consistence. The second and third branches of the fifth nerve were normal. By the microscope, the tissue of the nerve before entering the ganglion was found filled with extravasated blood, the capillaries distended and multiplied. Only the internal part of the ganglion which gives origin to the ophthalmic nerve was altered in structure. Here were extravasations and enlarged capillaries. At many points the ganglion-cells were disintegrating, some were entirely destroyed, while pus-cells were present in abundance; changes of a similar kind were traced down the nerve-trunk. The fibrous tissue was the structure chiefly damaged, but many nerve-fibres also exhibited lesions in the coagulation of their myeline, and conversion of the axis-cylinder into fat and granular matter. Of the peripheral lesions in the case may be mentioned abscesses in the ocular muscles, in the upper lid, in the subconjunctival connective tissue, and phlebitis of the ophthalmic vein—purulent infiltration of the cornea and iris, and extravasation of blood in the choroid and retina. The ciliary nerves were abundantly surrounded with pus-cells and extravasations.

The above facts give the explanation of herpes zoster, whether it affect the ophthalmic nerve or any branch coming from the cord. But it must also be stated that the eruption occurs from lesions not only of the ganglion on the sensitive root, but from inflammation of the peripheral part of a nerve as in traumatic cases, and from changes both in the gray substance of the posterior cornua of the cord and in its posterior columns.

In reasoning upon the facts discovered, Dr. Hybord distinguishes between the lesions now considered and those which result from paralysis of the fifth nerve. In the present case, the nerve is in active irritation when mischievous effects appear at its peripheral distribution. The impaired nutrition which sometimes attacks the cornea after paralysis of the ophthalmic branch of the fifth is evidently a very different condition; it is a suspension of function. In the latter case Dr. Hybord attempts to show that the eye suffers only when there are both anæsthesia and destruction of certain trophic filaments which come from the inner part of the ganglion Gasser. In the case of herpes zoster ophthalmicus the same fibres, both sensitive and trophic, are the seat of an active irritation.

2.—*A Report on the Forms of Eye-Disease which occur in Connection with Rheumatism and Gout.* By JONATHAN HUTCHINSON. [Ophthalmic Hospital Reports, vol. vii., pp. 287.]

The author deems it wise to call attention to rheumatism and gout as causes of iritis and scleritis, because this etiology is important to be recognized in treatment. He thinks the prevalent practice of the present time has disregarded this connection in an unfair degree. He fortifies his position by quotations from standard authors, and recounts seventeen cases which have come under his own observation. He takes pains to note the instances in which the patient has had gonnorrhœa as well as rheumatism or gout, prior to the eye-inflammation. Mr. Hutchinson does not assert his belief in a causal connection between gonorrhœa and rheumatism, or *vice versa*, but many of the authors do whom he quotes. This point is not quite in order to the discussion, but it deserves attention, that the present uncertain belief of the profession about it may be made more decided either for or against the theory. As to the influence of rheumatism and gout in causing scleritis and iritis, there can be no doubt; and that the form of inflammation is often both severe and obstinate is true; and this is the fact even when strictly anti-rheumatic or anti-gouty remedies are resorted to.

Perhaps the purpose of Mr. Hutchinson's report can be best enforced by relating a case in which the necessity of attending to the rheumatic diathesis was signally illustrated.

Mr. S., a lawyer, aged about forty, of plethoric habit, and very active mentally and physically, had abused himself by many excesses, had had syphilis and gonorrhœa, had had several attacks of iritis before I saw him, and they had been treated by mercurials and iodide of potassium as well as by sulphate of atropia. In some of the attacks he had been sick two months. He consulted me in one attack of iritis, and expressed an extreme aversion to submit to the former constitutional treatment. I judged, from the ruddy hue of his face and his full habit, that rheumatism might be to a great degree responsible for his iritis; especially because he complained of wandering muscular pains, and stated that his eye-trouble was apt to follow excesses in eating and drinking. He had iritis serosa. I directed the sulphate of atropia, grs. ij ad ℥j, every three hours, in the eye; and a drachm of Rochelle salts three times daily, with free use of diluent drinks. In forty-eight hours the symptoms ameliorated, and in a week the eye was well.

In less than a year another attack occurred. For this he himself tried, for a few days, the sal Rochelle and atropia, but with little benefit. I substituted liquor potassæ for the salt, and the good effect appeared promptly. The iritis was gone in a week, and by the atropia the pupil was fully dilated. The kidneys were in both instances excited to free action. In this case it was natural to suppose that syphilis might be the cause of the attacks, but the frequency of their occurrence, and the patient's appearance, impressed me with the idea that they were due to rheumatism, and this belief was fully confirmed by the success of the treatment.

3.—*Contribution to the Pathology of Keratitis.* By Dr. S. TALMA. [Archiv für Oph., Bd. xviii., Abth. 11, S. 1–9.]

The purpose of the author's experiments was to ascertain whether pus-cells are developed from the corneal corpuscles or are exclusively the white blood-corpuscles which have passed out of the capillaries. He excited traumatic inflammation in the cornea of frogs and white mice, rabbits and Guinea-pigs, by carefully touching it with nitrate of silver. After periods varying from half an hour to several days, the eyes were excised, and the cornea examined under the microscope. In all cases, the first per-

ceptible changes in tissue began in the circumference of the cornea, not in the vicinity of the centre where the caustic was applied. The test-substance relied upon to distinguish between corneal corpuscles and pus-cells was a strong solution of sugar. By it, the former are not affected, while the latter shrink to a nearly spherical form, and refract the light very strongly, and thus become conspicuous in the transparent tissue. The strength of the solution varies from 7½ to 10 per cent.

The result of many experiments, made at all stages of the inflammatory action, was to establish the fact that the corneal corpuscles have no part in the production of pus-cells; even when the cornea was deeply infiltrated, the corneal cells showed no signs of breaking up with or producing pus-cells. The conclusion is, that the pus was originated by emigration of the white blood-corpuscles from the vessels—that, in other words, they are "wandering cells." To substantiate this view, another experiment was made, by which, in two hours after irritation of the parts, the vessels in the immediate neighborhood of the cornea, in the eye of the porpoise, and white mice, and rabbits, were examined, and found to be crowded full of white blood-corpuscles, some of which had passed out of the walls of the vessels.

4.—*Epithelioma Perlé ou Margaritoïde de l'Iris.* Par Prof. F. Monoyer. [Paris, 1872, pp. 22.]

The case described is one of tumors of the iris which appeared some time after the eye had been wounded by a piece of wire. Vision continued at two-thirds. One tumor was about the size of a kernel of wheat, and at the lower and outer part of the iris; the other, diametrically opposite, and about as big as a hemp-seed. The color was peculiar, like mother-of-pearl, and the anatomical structure exhibits why it should have this reflex, because, like mother-of-pearl, it was made up of lamellæ.

The diagnosis was that the tumor was a cyst, and the operation for its removal was begun under this belief. Serious difficulties made its removal troublesome, and the eye was roughly treated. The effects of chloroform were unpleasant. The issue of the operation was panophthalmitis.

The tumor proved to be solid throughout, and to have no outer envelop. Its histological structure was epithelial, and the large cells resembled the epidermoid layer of the skin. They were without nuclei, and overlapped each other like layers of an onion; mingled with them were crystals of cholesterine. The attempt to explain why the tumor should grow is not satisfactory, but the practical fact that it proved to be solid is memorable, and that its shiny, iridescent surface betokened its solid structure is valuable for diagnosis.

Prof. Monoyer expresses his judgment in favor of a flap-wound in preference to a linear wound by which to remove such tumors, because it can be most easily enlarged if needful. He also incidentally states his preference for a wound of the cornea which is midway in character between a flap and the peripheral linear of Graefe, for extraction of cataract.

A tumor something like the above was reported by Prof. Rothmund, *Klin. Monatsbl.*, October, November, December, 1871.

5.—*Muscular Asthenopia and Myopia.* By J. Mannhardt. [Archiv für Ophth., Bd. xvii., Abth. 11, S. 69-97.]

The gist of this paper is found in an attempt to give a more correct means of measuring muscular insufficiency than we possess. Before coming to this, some observations are made as to the general subject of myopia and hypermetropia, and their relations to muscular troubles. The author is an Italian, and asserts that, while about 80 per cent. of his countrymen

are unable to read, in the remaining 20 per cent. myopia is extremely frequent, and it occurs only among this class. He says that he operates for strabismus divergens twenty times more frequently than for strabismus convergens.

The point which the author emphasizes is that, in determining muscular asthenopia, the distance between the centres of rotation of the eyes must be taken into account. This is sufficiently obvious, and as is seen by an illustration that, if the ocular centres are 56 millimetres apart, an angle of convergence of 21½° will make the optic arcs cross in the median line at 7 centimetres from the base line, while, if the intraocular distance is 72 millimetres, the place of crossing will be 9 centimetres distant with the same angle of convergence. Hence, in the latter case, a convergence for the same distance demands a greater angle and muscular effort.

On this point are some observations as to the formation of the skull and types of race in originating these differences. The author calls the power of diverging the visual lines beyond a state of parallelism the facultative divergence. He gets it by means of prisms with the base inward, while the person regards a distant object. He takes 8 centimetres as the average distance from the base-line to which the normal power of convergence should attain. He takes the average amount of facultative divergence at 2½° for each eye, and the total converging power (C), which includes the facultative divergence (f. d.), at 24° for each eye.

The visual intraocular distance he takes at 64 millimetres. The greater this width, the greater does he find the facultative divergence, and upon simple anatomical grounds. In a given case the author's method is to measure the distance from the centre of one pupil to the centre of the other (how, he does not say); to take half this distance as a base-line; to erect upon one extremity a perpendicular of 8 centimetres; and then, by a protractor, find the angle of inclination of the eye to effect this convergence; next, by prisms, to find the degree of facultative divergence. For instance: if the base-line be 32 millimetres, the angle of convergence will be 21½°. If facultative divergence be 2½°, there will be no symptom of asthenopia—in this case, the sum total of convergence being 24°. But, if with the same base-line, the facultative divergence be greater, and, added to the other angle, reach 28° or more, then he expects to find asthenopia.

The assumption in the above reasoning is, that the average converging power is 24°, and that intraocular separation is the essential element in musculiar asthenopia. We are not prepared to accept the first statement as a general principle. It is emphatically not true of many persons; some of whom have far more muscular power, and some rather less; while both show no signs of asthenopia. As to the second proposition, while it deserves weight, it fails utterly to account for many cases of the trouble as we see them in this country. We find the disease without any refractive error, and oftenest in women in whom the intraocular distance is small. In truth, this paper professes to deal with muscular asthenopia only in its relations to myopia, and a very large contingent of cases with which American practitioners are familiar is quite left out.

6.—*On the Diagnosis of Muscular Insufficiency.* By Dr. L. Kugel. [Archiv f. Ophth., Bd. xviii., Abth. 11, S. 163–200.]

The writer has special qualifications for the work which he undertakes, in being himself afflicted by the malady which he describes. He contributes highly-valuable suggestions on the question of diagnosis, and shows a more penetrating insight into the matter than is evinced by any paper written since Graefe's contributions. A desideratum which he does not satisfy is, to give precise indications for the use of prisms, what determines

their degree, and how they are to be employed. But we may congratulate ourselves on what Dr. Kugel has given, and hope he has more in reserve.

Dr. Kugel places the highest value upon Graefe's test for the near, by causing vertical diplopia; and in this we agree with him, in opposition to Mannhardt. The facts of his own case are a complete refutation of Mannhardt's assumption that all persons possess an arc of movement of the eye of 24°, and that insufficiency consists only in an undue distribution of the total, between divergence and convergence. Dr. Kugel has for six inches insufficiency of 24°, for ten inches of 18°, and for six feet equilibrium; in which case Dr. Mannhardt would pronounce him not a subject of insufficiency. He has in one eye a mixture of regular and irregular astigmatism, and vision equals one-tenth. He gives the practical hint that, for cases like his own, of monocular amblyopia, a large dot be used, or, for considerable distances, the flame of a candle, in testing the muscles. The symptoms, to which he specially calls attention, are the following:

1. That by putting a colored glass before one eye, and especially before the better one, he sees crossed double images.

2. That, because of the increase of the insufficiency of the interni, when the eyes are turned upward, a marked diminution of the acuteness of vision will be noticed in those patients when they attempt to read with the eyes turned upward. For himself the difference is so great that, while with downcast eyes he reads No. 1 without glasses at ten inches, with visual lines turned up he reads only Snellen No. 7. The converse is true that, when the look is strongly directed downward, visual acuity increases.

Turning the eyes sidewise has the effect to diminish muscular insufficiency, and, in the case of Dr. Kugel, from 18° to 14°. This was also noticed by Graefe.

3. An experiment to which Dr. Kugel attaches importance is, the effect produced by rotating a prism in front of one eye. If there be no muscular trouble, the appearance will be that the image seen through the prism will move in a circle around the true image as a centre. If insufficiency exist, the false image will describe a circle, leaving the true image either on its periphery, or outside of it, or inside of it, but eccentric.

4. To detect irregularities in the muscle, he employs the following test with a vertical line: He places obliquely across its centre a card about eight inches wide and long, with its edge on the paper so that one eye shall see only the upper half of the line, and the other eye only the lower half of the line. The two halves of the line fail to appear continuous, but separate into parts laterally displaced—this discovers lateral insufficiency. He discovers errors in the muscles which move the eyes up and down, by putting a similar piece of card edgewise and vertically across the middle of a horizontal line—the right half being visible only to the right eye, and the left half only to the left eye. To Dr. Kugel the line breaks into two halves, displaced laterally and vertically, so that one appears above the other, and the two not parallel. A prism correcting the insufficiency of the interior restores the correct lateral position, while a prism of 2° base vertical brings down the halves to a common level. This discovers the vertical deviation of the eye and its degree. The experiment may be carried further by drawing a line perpendicular to each half; then, in case the muscles rotating the globes, if at fault, will make the separated crosses to stand awry—either diverging or converging at the top. These and all the tests should be made with the eyes in the usual reading position, slightly turned downward—Listing's primary position—and, with them, elevated and depressed; when elevated, divergence is promoted, and, when depressed, convergence is favored.

The author states that he is presbyopic, and uses, for reading, +24.

He naturally raises the inquiry as to the influence of glasses in insufficiency. He finds that with his glasses the muscular defect is increased at 10″ by 4°, and advises that the state of the muscles should be determined with the half of the glasses proper to the refraction. A fact not mentioned by the author, and corroborating his general statement, is, that in myopes, who have insufficiency, concave glasses will abate or remove the apparent muscular defect, the seeing-distance not being changed.

7.—*Contributions to a Better Knowledge of the Deeper Lymphatic Vessels of the Eye.*—By Dr. Julius Michel. [Graefe's Archives, B. xviii., Abth. I., S. 127–154.]

Contribution to the Histology of the Lamina Cribrosa Scleræ. By Dr. Wolfring. [Graefe's Archives, B. xvii., Abth. 11, S. 10–24.]

Remarks on the Blood-Vessels of the Optic Nerve and Retina, and their Relations.—By Prof. Th. Leber. [Graefe's Archives, B. xviii., Abth. 11, S. 25–37.]

The researches of Schwalbe and Schmidt have done so much to establish an intimate connection between the optic papilla and the brain, both in anatomy and pathology, that the subject cannot be dropped until it has been completely exhausted. In fact, it is imperative that we should possess the most absolute and complete knowledge of the whole matter. Without it our inferences from the phenomena of the optic disk must be uncertain and vague. On the one hand, we should fail to properly appreciate all that occurs in intraocular pathology, and still more egregiously must we miss the mark when we begin to reason from these data to intracranial lesions. The papers above quoted supply us with important facts. But, with the most exact knowledge we can have, can any critical and logical observer with the ophthalmoscope be willing to use the word cerebroscopy when he is studying only the optic papilla?

The papers of Wolfring and Leber relate more to the blood-vessels than to the lymph-vessels, and they make more complete the classical studies of Leber on the same subject in 1864. The facts made prominent are as follows:

That the lamina cribrosa is neither a region of the sclera bored with many holes for the passage of optic nerve-fibres, nor a single hole partially filled up by a net-work of connective tissue thrown across it from the scleral margins, through which the fibrillæ of the nerve are transmitted. It is made up of—1. Fibres of connective tissue derived from the optic nerve-fibres, which at this point part with their neurilemma; and 2. Of a plexus of fine vessels which interpenetrate the bundles of nerve-fibres. The origin of these vessels is an important point in the paper. About the connective tissue it must be added that a large number of cells are found in the lamina, which Wolfring calls lymphoid cells, but which Leber inclines to think are only connective-tissue corpuscles: they are abundant in new-born children.

The optic nerve is invested in the orbit by two fibrous sheaths, one enclosing the other, and between them is a space which Schwalbe calls a lymph-space. The outer sheath at the eye fuses with the sclera; the inner sheath passes through the foramen opticum, and attaches itself to the sclera at the innermost lip of the opening. We will first consider the blood-vessels belonging to the nerve. At the lamina cribrosa a large number of capillary vessels interlace and form a plexus. These are furnished from several sources: 1. From a circlet of vessels which surround the optic nerve at its entrance into the eye, and come from the posterior ciliary arteries. 2. Some come from the arteria centralis retinæ.

3. Fine vessels come down from the pia mater and brain-substance along with the optic nerve-fibres and contribute something to the plexus. 4. On the inner sheath of the nerve, vessels ramify, which penetrate the lamina cribrosa. In reality the blood-supply is from three sources: by very fine vessels direct from the cavity of the cranium—these are the fewest; by branchlets from the arteria centralis retinæ, which penetrate the nerve about one-half an inch behind the eye; by twigs from the circlet derived from the posterior ciliary arteries, and these the most important. This circlet around the nerve was described by Zinn, as Leber tells us, but we well remember the stress laid upon it by Prof. Ed. Jaeger, who in reality rediscovered it fifteen years ago. It establishes an anastomosis between a limited region of the choroid and the papilla and the inner sheath of the nerve, and remotely with the brain. This circlet also supplies twigs to the outer sheath, and in reality is the great fountain of nutrition to the optic papilla. A finely-executed engraving shows these relations perfectly.

Leber very correctly draws some inferences from the above facts. One is, to abate some of the exaggerated stress which Galezowski and others have laid upon the vascularity of the papilla, as being a direct prolongation of the cerebral circulation. Behind the place of entrance of the arteria centralis retinæ, the optic receives vessels from its sheath and among its fibres and small vessels, all of which come from the brain; but the ocular end of the nerve is far more richly supplied from the additional sources mentioned.

While the blood-supply of the papilla is manifold, this does not help the circulation of the retina. The latter must depend on the arteria centralis, and, if this be plugged by embolus, the retinal nutrition is necessarily much impoverished.

This vessel is a terminal artery, as Cohnheim calls it in his paper on embolic process, and for this reason, if it be obstructed, infarctus ensues. This takes place for two reasons: 1. The withdrawal of the circulating fluid has a damaging effect on the walls of the vessels; and 2. The venous blood regurgitates through the capillaries, and, because of the softened state of the walls of the arteries, it bursts them and causes infarctus. This may be seen in retinitis apoplectica.

Besides the above studies of the blood-vessels, the lymphatics are to be considered. All that was claimed by Schwalbe is not confirmed. It is admitted that the intervaginal space of the optic sheath communicates with the cavity of the arachnoid, and fluid may be forced through from the cranium so as to pass the optic foramen along the intervaginal space to the eyeball; but the fluid did not find its way beneath the inner sheath, nor among the fasciculi of the optic fibres, nor into the lamina cribrosa.

The only way in which, without great violence, the fluid could be pushed into the lamina cribrosa, was, by putting the point of the canula just underneath the inner sheath of the nerve. To put it simply into the intervaginal space, or deep into the substance of the nerve, was quite ineffectual. It appears that the lymphatics course about the outside of the bundles of nerve-fibres, while the blood-vessels enter into the inside of these fasciculi. The lymphatics make a pretty close net-work just beneath the inner sheath, from which some trunks pass out through the united sheaths into the orbit; but the chief outlet is into the arachnoidal space. The substance of Dr. Michel's experiments is, that the intervaginal lymph-space communicates by apertures in the outer sheath with the extravaginal lymph-space, and by similar apertures in the sclera with the supra-choroidal lymph-space. The last, by means of lymphatic passages about the venæ vorticosæ, communicates with the capsule of Tenon. By these several intercommunications fluid may under some circumstances find its way from the arachnoid cavity so far forward as to make a sub-con-

junctival œdema; but this is not to be considered a common event in pathology.

Another point is that, under severe pressure, an injection may be forced from the intervaginal space into lymphatic vessels, which exist in a narrow space in the sclera around the optic entrance. When distended they make a small path closely resembling the forms sometimes assumed by the choroidal atrophy in myopia, the so-called sclerotic choroiditis posterior, a noteworthy fact in Michel's injections.

8.—*Upon Hereditary and Congenital Disease of the Optic Nerve.* By Dr. THEODOR LEBER. [Archiv f. Ophth., vol. xvii., part xi., p. 249.]

The foundation of this article is a careful account of four families, numbering nine patients, whom Dr. Leber has examined and treated for optic-nerve disease, which has had an unmistakable hereditary character. There is a general similarity in the affection and the pathological character of the nature of the disease, which Dr. Leber pronounces to be retro-bulbar neuritis. This diagnosis is not based upon autopsy of any of the cases, but upon the chemical resemblance of the cases to those which are thus recognized. Before relating the account of his cases, reference is made to similar facts found in the older literature, showing that such observations have been made before. It is, however, impossible to discriminate, in the cases recorded in pre-ophthalmoscopic times, retinitis pigmentosa from optic neuritis. Both in clinical features, in treatment, and in prognosis, the two classes of diseases materially differ.[1]

[1] A case quoted by Leber from Monteath's translation of Weller was seen by him only in condensed form, as contained in Laurence "On the Eye." I find the autopsy to be interesting, both as regards the optic veins and the state of the cerebral arteries. The conjecture respecting the effect of pressure of the atheromatous carotids on the optic nerves has occurred to my own mind in another case, and is worth remembrance. I give Dr. Monteath's note in full [Weller "On the Eye," vol. ii., page 79, note]:

"In 1817 I was requested by my friend Dr. Brown, an eminent physician of this city, to inspect the head of a lady who had been affected with amaurosis for many years. The state of the optic nerves was very peculiar, and, as her sister and daughter were affected with the same disease, I have thought the leading circumstances of their cases worthy of being inserted here. The following statement has been obligingly sent me by Dr. Brown:

"'Mrs. ——, aged eighty-three, had been completely blind from amaurosis for thirty years, before her decease in 1817. She had also been subject to irregular gout, which assumed a variety of forms, and, some months before her death, she was attacked with palsy of one side.

"'On opening the head, aqueous effusion was found below the tunica arachnoidea and in both ventricles. One part of the cerebrum was observed to be of a pulpy texture; but these appearances were most probably connected with the recent paralytic attack, and not at all with the amaurotic.

"'All the nerves, with the exception of the optic, had the usual appearance. On examining the membranous sheaths of these nerves, it was ascertained that their medullary matter had been completely removed, and this change had taken place even nearer to the brain than where the nerves cross each other.

"'The arteries of the brain were in most parts altered in their structure; their coats were speckled with white spots, and their texture was more rigid and firm than natural. Both the carotids, where these vessels are in contact with the optic nerves at the foramen opticum, were found to be remarkably dilated, suggesting the idea that the absorption of these nerves was connected with the enlarged state of the arteries.

"'The absorption of the optic nerves nearer the brain, however, could not be accounted for on this notion, so that it is not easy to conjecture whether the enlarged state of the vessel was the cause or the effect of the absorption of the optic nerve.

"'A similar tendency to enlargement of the arteries was noticed where the cerebral arteries enter the cranium, and perhaps it might have been traced in other situations, if a more minute search had been made.

"'It is, perhaps, worth remarking that in both of those situations, where the arteries were found dilated, these vessels make a sudden turn, and from this cause their coats are exposed to a full stream of blood from the heart. We can readily conceive, therefore, that amaurosis may occasionally depend on the enlargement of this turn of the carotid artery, producing, by its pressure, absorption of the medullary matter of the optic nerves.

"'The twin-sister of this lady died in the eighty-first year of her age, and, for eight or ten years before her death, she also had been completely amaurotic. Though her general health was more entire than is usual at such an advanced age, she had lost not only her sight, but also her senses of taste, of smell, and of hearing. She could not distinguish animal from vegetable food, or one sort of fluid from another.

Besides the instances which Dr. Leber has carefully noted, there are nine more of which he has knowledge, and from the total of eighteen he draws certain deductions. He regards the affection as inflammation of the stem of the optic nerve, with which retinitis is sometimes associated, and which terminates in partial and rarely in total atrophy of the nerve. Both eyes are commonly affected either at once or in succession, and the first symptom is central scotoma, which is apt to continue to be characteristic. The lesion appears suddenly as a cloud before the sight, and sometimes the scotoma reaches out from the centre to some part of the periphery. The development of the full extent of the mischief may be rapid or slow.

Color-blindness is a regular symptom, but not always to be detected in the region of scotoma when the latter is dense. At evening, or in cloudy weather, they see better, and subjective luminous appearances are common.

By the ophthalmoscope some morbid change could almost always be seen—exceptions occurred, although seldom. A little haziness of the margin of the nerve, and hyperæmia of its vessels, could be seen, or even a slight neuro-retinitis might appear. The occurrence of fine, white streaks along the vessels was frequent, or a peculiar spot of exudation might be deposited in the disk, as is represented in one case by a chromo-lithograph. At this stage the arteries are not reduced in size, as is ordinarily the case in neuritis optica, but are either normal or enlarged. After a time a decided white or bluish-white decoloration of the nerve ensues, the vessels become small, and the lamina cribrosa may or may not become conspicuous. The white color of the nerve may be confined to its temporal half, or overspread the whole. As this stage occurs, the degree of vision deteriorates; but, when it is fully established, a change for the better may be noted, while the looks of the optic nerve continue unchanged. This fact has much practical value, and encourages attempts at treatment by a prospect of success despite atrophic appearances. The influence of hereditary tendency is undoubted, but does not always come in the direct line of parentage. In the first family, where three sons were born of one father, and two sons and a daughter born of another father, the hereditary tendency came exclusively from the mother; she was unaffected, but her brothers were victims. So the disease cropped out upon the nephews. Men are much more often affected than women. The time when the disease appeared was between the ages of thirteen and twenty-eight years. In many patients there were other neurotic symptoms, such as headache, *migrain*, dizziness, palpitation of the heart, etc. In one case there was epilepsy.

The treatment which seemed to be most useful was a mild course of mercurial inunction. Even the inception of the atrophic stage need not deter one from the practice. Iodide of potassium does very little good. Local bloodletting was employed in the more hyperæmic cases, but without the manifest good effects so promptly witnessed in ordinary cases of amyblopia. Galvanization of the sympathetic in one case was followed by surprisingly good results; but such was not the experience in other cases. But Dr. Leber recommends further trials of this remedy, in the belief that good may come of it. Tonics were found ineffectual, and injections of strychnia equally valueless.

"'No opportunity was obtained of inspecting the head. The only daughter of Mrs. —— is at present alive, and has been totally blind from amaurosis for several years; she is at present in her fifty-sixth year.'

"I have been consulted by the son and grandson of Mrs. ——, who have both weak eyes. The grandson, in particular, has a very distressing degree of congenital amblyopia.

"Any exertion of his eyes induces temporary blindness; and, though he can sometimes see a minute object, at others he will walk directly against a chair or table.—TRANSLATOR."

9.—*Embolism of a Branch of the Central Retinal Artery.* By Dr. A. Barkan, San Francisco.

Embolism of Branches of the Central Retinal Artery. By Dr. H. Knapp. [Archives for Ophth. and Otology, vol. iii., part i., 33–39.]

The cases are clearly described, and present very characteristic appearances. A summary of the symptoms is given by Dr. Knapp:

1. Sudden appearance of the impairment of sight, which at first manifests itself as an obscuration of the whole visual field of the affected eye, but more or less rapidly disappears in one part, leaving a defect in the upper or lower half.

2. When a primary branch of the central retinal artery is obstructed, it results in *superior* or *inferior hemiopia;* but, when a secondary branch only is obstructed, a *sector-like* defect in the upper or lower half of the visual field is observed. At least one border-line of both the hemiopic and sector-like defects coincides with the horizontal meridian.

3. The portion of the optic papilla lying in the opposite direction to the defect in the visual field becomes white and punctate—partial atrophy of the optic nerve—which is well set off by the unchanged appearance of the remainder of the papilla.

4. The obstructed arteries become thin, seamed with white streaks, and disappear a short distance from the papilla. The veins are not changed.

10.—*Intraocular Enchondroma.* By Dr. J. J. Chisholm, of Baltimore, and Dr. H. Knapp, of New York. [Archives for Ophth. and Otology, vol. iii., part i., 1–16.]

A case in many respects important—a tumor which had been twenty-two years growing, which was of a nature hitherto not known to occur in the eye, viz., a cartilaginous structure, and which, while it was enucleated without particular difficulty, yet became indirectly the cause of death in consequence of secondary hæmorrhage nine days after the operation. To control the hæmorrhage, the common carotid was tied. The only explanatory remark in connection with the death is that irregular tetanic symptoms supervened—no autopsy reported.

The patient was a farmer, twenty-five years old, and in good health. The tumor attained the size of a large egg, being two and a half inches in the short diameter, and three and a half inches in the long diameter. It was sometimes painful, but chiefly inconvenient because of its magnitude. It was naturally supposed to be a cancerous mass, despite its long continuance and its confinement within the tunics of the eye. After its removal the tissues of the orbit were found to be healthy.

The microscopic examination, very carefully made by Dr. Knapp, and illustrated by many drawings, showed that there was an enveloping fibrous capsule; within were numerous hard nodes separated by fibrous septa, and about one-fifth of its bulk consisted of softer substance of a fibro-granular appearance.

In the nodes were found two varieties of cartilage, the hyaline and the fibrous, in very characteristic pictures. The fibro-granular part was composed of fat, granular bodies, connective tissue, and formative cells, with blood-vessels.

Dr. Knapp convinced himself that the enchondroma originated from some part of the inner layers of the sclerotic, and that the cartilage increased not by cell-multiplication of its elements but by the conversion of formative cells into cartilage-cells. He thinks the tumor entirely benign in a clinical sense, and has not found in literature a similar case.

11.—*Report upon Fifty Extractions of Cataract according to Weber's Method.* By Dr. Carl Driver, in Chemnitz. [Graefe's Archiv für Oph., vol. xviii., 11, 200.]

Weber proposed a method of operating for cataract by making a section at the upper margin of the cornea with a hollow lance-knife. The knife is of the exact size to make a wound which will permit easy exit of the lens. Its point is thrust completely to the opposite side of the anterior chamber. An iridectomy is sometimes made and sometimes is not made, according to the difficulty of removing the lens and the dilatability of the pupil. After opening the capsule freely, the expulsion is effected by pressure and counter-pressure, as usual—the counter-pressure being made by a small shovel of Dr. Weber's invention. This brief explanation may not be out of place notwithstanding the announcement of the method was made in an elaborate article so long ago as 1867 in the Archives, because few persons have adopted the proceeding, and scarcely any statistics besides Weber's have been published. The technical difficulty of correctly using the knife is, according to Weber, considerable, while the manipulation of Graefe's knife is easy, and few have been willing to try to attain the skill for a new operation until the experience of Graefe's method had been completed.

Dr. Driver reports the following facts: "He operated on thirty-nine persons and made fifty extractions. He made iridectomy in twenty-six operations—in the first fourteen cases without exception, and in the subsequent operations using discrimination as to special indications. In so far as a circular pupil may be secured, the operation may justly claim an advantage for acuity of vision. But the special claim put forth is in behalf of rapidity of healing as well as safety. The average stay in the institution we are told was one week, and eight cases were dismissed in from three to five days without the presence of the slightest irritation." The healing process in forty cases was perfectly normal; in three cases iritis occurred.

As the general result: in forty-four eyes, S = $^{20}/_{30}$ to $^{20}/_{100}$; in three was quantitative perception capable of improvement by iridectomy; in three total loss. Total fifty.

The above figures make an excellent showing, and further facts will be gladly welcomed, but, in the present attitude of the subject of cataract extraction, a new method must present very strong arguments before it will secure adoption.

While the form of Weber's cut is greatly in its favor, the operation requires an accurate estimate of the size of the cataract, so as to choose the knife of proper size, and this is not always easy.

12.—*Cataract Extraction, 200 Cases.* By David Little, M. D. [British and Foreign Medico-Chirurgical Review, January, 1873.]

The author performed Graefe's operation, and in reckoning his results has:

Total loss	7
Quantitative perception of light	9
Count fingers	1
Read Jaeger 1	146
" Jaeger 2 to 4	25
" Jaeger 6 to 8	5
" Jaeger 10 to 19	7

The author reckons his good results to be one hundred and eighty-three cases, giving 89 per cent. He certainly was fortunate to save more than

70 per cent. able to read Jaeger 1, but this means acuteness of vision, ranging between $^{20}/_{20}$ and $^{20}/_{70}$ or even more. Every oculist knows that many patients whose distant vision is highy amblyopic will do remarkably well in reading small type, and we therefore regret that the test was not taken for distant print.

He gave chloroform in only four cases, which shows that his patients possess more self-control than belongs to Americans. In twenty-seven cases, iritis took place; the average duration of cure is not given. Secondary operations on the capsule were done seventeen times. Loss of vitreous happened twenty-two times, yet he endeavors, he says, "to lay the centre of the section just within the cornea, and thereby diminish the risk of rupturing the hyaline membrane." It is thus evident that our author, like so many others, does an operation called by Graefe's name, but not strictly after his method. A noteworthy and sensible observation is, that he puts in atropine early after the operation—as early as six or eight hours after, which is sooner than the general practice, but, he asserts, not so soon as to be dangerous, but greatly helpful in warding off iritis.

13.—*Report on Sixty-four Cataract Extractions according to the Method of Von Graefe, performed at the Massachusetts Charitable Eye and Ear Infirmary.* Compiled by Dr. H. Derby. [Report of the Infirmary for 1872.]

Of the whole number, the resulting vision was ascertained in only fifty-four; but, of the remaining ten, eight were known to be good results. The summary gives thirty-one with vision $\frac{1}{6}$ and better; and fifteen between $\frac{1}{6}$ and $\frac{1}{19}$. There were seven failures. In seven cases, secondary operations were done. One patient died of pyæmia, upon whom a normal operation was done, and no account is given of the character of the morbid process in the eye.

The successes foot up, 84 per cent. vision above $\frac{1}{10}$; and failures 11 per cent.; being 5 per cent. for cases worse than $\frac{1}{10}$, but not failures.

Medical Works published by D. Appleton & Co

Anstie on Neuralgia. 1 vol., 12mo. Cloth, $2.50.
Barker on Sea-Sickness. 1 vol., 16mo. Cloth, 75 cents.
Barnes's Obstetric Operations. 1 vol., 8vo. Cloth, $4.50.
Bellevue and Charity Hospital Reports. 1 vol., 8vo. Cloth, $4.
Bennet's Winter and Spring on the Mediterranean. 1 vol., 12mo. Cloth, $3.50.
Bennet on the Treatment of Pulmonary Consumption. 1 vol., 8vo. Cloth, $1.50.
Billroth's General Surgical Pathology and Therapeutics. 1 vol., 8vo. Cloth, $5.
Combe on the Management of Infancy. 1 vol., 12mo. Cloth, $1.50.
Davis's (Henry G.) Conservative Surgery. Cloth, $3.
Elliot's Obstetric Clinic. 1 vol., 8vo. Cloth, $4.50.
Flint's Physiology. 4 vols. (Vol. V. in press.) 8vo. Cloth, per vol., $4.50.
Flint's Manual on Urine. 1 vol., 12mo. Cloth, $1.
Flint's Relations of Urea to Exercise. 1 vol., 8vo. Cloth, $2.
Hammond's Diseases of the Nervous System. 1 vol., 8vo. Cloth, $5.
Hammond's Physics and Physiology of Spiritualism. 1 vol., 12mo. Cloth, $1.
Holland's (Sir Henry) Recollections of Past Life. 1 vol., 12mo. Cloth, $2.
Howe on Emergencies. 1 vol., 8vo. Cloth, $3.
Huxley on the Anatomy of Vertebrated Animals. 1 vol. Cloth $2.50.
Huxley and Youmans's Physiology and Hygiene. 1 vol., 12mo. Cloth, $1.75.
Johnston's Chemistry of Common Life. 2 vols., 12mo. Cloth, $3.
Letterman's Recollections of the Army of the Potomac. 1 vol., 8vo. Cloth, $1.
Lewes's Physiology of Common Life. 2 vols., 12mo. Cloth, $3.
Markoe on Diseases of the Bones. 1 vol., 8vo. Cloth, $4.50.
Maudsley on the Mind. 1 vol., 8vo. Cloth, $3.50.
Maudsley's Body and Mind. 1 vol., 12mo. Cloth, $1.
Meyer's Electricity. 1 vol., 8vo. Cloth, $4.50.
Niemeyer's Practical Medicine. 2 vols., 8vo. Cloth, $9; sheep, $11.
Neftel on Galvano-Therapeutics. 1 vol., 12mo. Cloth, $1.50.
Nightingale's Notes on Nursing. 1 vol., 12mo. Cloth, 75 cents.
Neumann on Skin Diseases. 1 vol., 8vo. Cloth, $4.
Peaslee on Ovarian Tumors. 1 vol., 8vo. Cloth, $5.
Pereira's Materia Medica and Therapeutics. 1 vol., 8vo. Cloth, $7; sheep, $8.
Sayre's Club-foot. 1 vol., 12mo. Cloth, $1.
Stroud's Physical Cause of the Death of Christ. 1 vol., 12mo. $2.
Swett on Diseases of the Chest. 1 vol., 8vo. Cloth, $3.50.
Simpson's (Sir Jas. Y.) Complete Works. Vol. I. Obstetrics and Gynæcology. 8vo. Cloth, $3. Vol. II. Anæsthesia, Hospitalism, etc. 8vo. Cloth, $3. Vol. III. The Diseases of Women. (In press.)
Tilt's Uterine Therapeutics. 1 vol., 8vo. Cloth, $3.50.
Van Buren on Diseases of the Rectum. 1 vol., 12mo. $1.50.
Vogel's Diseases of Children. 1 vol., 8vo. Cloth, $4.50.
Wagner's Chemical Technology. 1 vol., 8vo. $5.
Barker on Puerperal Diseases. (In press.)
Van Buren on Surgical Diseases of the Male Genito-Urinary Organs. (In press.)
Schroeder on Obstetrics. (In press.)
Frey's Histology and Histo-Chemistry of Man. (In press.)
Wells on Diseases of the Ovaries. (In press.)
Manual of Medicinal Chemicals and their Preparations. (In press.)
Steiner's Compendium of Children's Diseases. (In press.)
Bastian's Diseases of Nerves and Spinal Cord. (In press.)

*** Any of these works will be mailed, post free, to any part of the United States, on receipt of the price. Catalogue forwarded on application.

D. APPLETON & CO., 549 & 551 Broadway, N. Y.

APPLETONS' JOURNAL FOR 1873.

ENLARGEMENT.

APPLETONS' JOURNAL will henceforth be enlarged to the extent of four more pages of reading. The Advertisements, which have hitherto occupied a few pages at the end, will be remanded to a *cover*, and the entire thirty-two pages of the sheet will be devoted to literature. The JOURNAL has always contained a larger quantity of reading-matter than any other periodical of its class, and this addition renders it the cheapest literary periodical in the country.

APPLETONS' JOURNAL gives, in a weekly form, all the features of a monthly magazine. Its weekly issue brings it a more frequent visitor to the family than is the case with a monthly periodical, while, in course of the year, a much greater aggregate and a larger variety of papers are furnished than are given in any of the regular monthlies. But, for those who prefer it, the JOURNAL is put up in *Monthly Parts*, and in this form its scope and variety, as compared with other magazines, become conspicuously apparent.

APPLETONS' JOURNAL will continue to present healthful, sound, instructive, and entertaining literature. It will confine itself, as a rule, to *one serial novel at a time*; it will contain the best short stories attainable; it will give picturesque descriptions of places, and stirring narratives of travel and adventure; it will have entertaining papers upon various subjects that pertain to the pursuits and recreations of the people; it will give portraits and sketches of persons distinguished in various walks of life; will present lively, social sketches, having in special view those things the knowledge of which will contribute to the welfare and happiness of the household; it will describe phases of life in all quarters of the globe; it will discuss the important events of the time, and the advances made in art, literature, and science; it will endeavor to reflect the ideas, movements, and development of society; and, while hoping to enlighten, will strenuously aim to entertain, with large abundance of material, all who resort to its pages for intellectual pleasure. Illustration will be used sufficiently to give variety and animation to its pages; but the aim will be to make it rather a journal of popular high-class literature than merely a vehicle for pictures. In carrying out this programme, the editors will have the aid of the ablest writers procurable.

Price, 10 Cents per Number; or $4.00 per Annum, in advance. Subscriptions received for Twelve or Six Months. Subscription Price of Monthly Parts, $4.50.

Any person procuring FIVE Yearly Subscriptions, for weekly numbers, and remitting $20, will be entitled to a copy for one year *gratis*; FIFTEEN Yearly Subscribers, for weekly numbers, and remitting $50, will entitle sender to a copy for one year *gratis*.

The postage within the United States is 20 cents a year, payable quarterly, in advance, at the office where received. Subscriptions from Canada must be accompanied with 20 cents additional, to prepay the United States postage. New York City Subscribers will be charged 20 cents per annum additional, which will prepay for postage and delivery of their numbers.

In remitting by mail, a post office order or draft, payable to the order of D. APPLETON & CO., is preferable to bank-notes, as, if lost, the order or draft can be recovered without loss to the sender.

Volumes begin with January and July of each year.

APPLETONS' JOURNAL and either *Harper's Weekly*, *Harper's Bazar*, *Harper's Magazine*, *Lippincott's Magazine*, the *Atlantic Monthly*, *Scribner's Monthly*, or the *Galaxy*, for one year, on receipt of $7; APPLETONS' JOURNAL and *Littell's Living Age*, for $10; APPLETONS' JOURNAL and *Oliver Optic's Magazine*, for $5; the JOURNAL and POPULAR SCIENCE MONTHLY, for $8.

D. APPLETON & CO., Publishers,
549 & 551 Broadway, N. Y.