

tributed to gastric ulcer, and for this she was treated until she left the hospital, on the 23d. On the 18th October she was readmitted, the treatment having been continued outside. Her physician reports a continuation of the vomiting, but no blood, and no localized pain in the greater curvature; food never retained over ten or fifteen minutes. Bowels costive; micturition frequent (twenty-seven times in one day), with burning and tenesmus. It is now ascertained that for the last three years her catamenia have been irregular and painful, and on examination, October 29th, with speculum, through a resisting hymen, a well-marked endocervicitis was revealed, with profuse secretion from the os, the circumference being extensively abraded. The cervix was thoroughly scarified, and iodine was freely applied within and without.

November 6th. The erosion but little modified. Treatment repeated. *No vomiting since the first application.* Ordered beefsteak, which was relished and well borne.

November 15th. Has vomited once since last report, and is occasionally distressed by solid food. She has Valentine's extract, tea, toast, and beefsteak. Menstruation causes no increase of symptoms. Bowels torpid. A large furuncle upon nates.

November 28th. Has rejected her food two or three times only since last report. The erosion has healed entirely, leaving a decided congestion and profuse cervical discharge. To modify the nutrition of the parts more thoroughly fuming nitric acid was applied.

December 7th. Granulations from slough exuberant, and touched very lightly with nitrate of silver.

December 23d. Cervix entirely healed and looking healthy. Since last report has had a sharp attack of diphtheritic sore throat.

December 25th. No pain, no vomiting, and says she feels perfectly well, and is discharged to return to her home in Nova Scotia.

CASE II. A. B., aged twenty-seven, widow. This patient was admitted to the hospital for acute rheumatism November 23, 1879. She reports that for three months she has suffered from rheumatic pains in both legs, commencing in the ankles and extending to the knees, and of late to some degree to the thighs. For the past fortnight these pains have been worse, with the knees and ankles excessively tender to the touch, and she thinks there has been some swelling. Pain more severe at night. No specific history. Bowels torpid. Micturition frequent and burning. Catamenia irregular, intervals varying from one week to four weeks, very painful, and occasionally excessive. At the first visit the limbs were found enveloped in cotton. Temperature 101.2° F.; pulse 100; tongue coated. The slightest attempt at examination of the limbs caused such turbulent outcries that it was desisted from, and as the diagnosis of acute rheumatism seemed rational enough she was ordered salicylic acid, and for temporary relief subcutaneous injections of morphine. A week later (November 30th), as there was no apparent improvement under treatment, the cotton envelopes were carefully removed, against her vehement protest and apparent suffering. On exposure to the air intense clonic contractions of flexor tendons at ankles and knees occurred, and excessive rigidity of the muscles, causing great pain. The true nature of the case was now suspected.

December 10th. At the termination of a catamenial period examination showed the uterus to be very

tender. There was intense endocervicitis, with abundant discharge of muco-pus from the cervix. No uterine displacement. Vaginal walls somewhat injected. The uterus was swabbed with a strong solution of carbolic acid, and hot carbolized vaginal douches were ordered.

December 11th. The intense pains of the limbs, of some three months' duration, and simulating so completely acute rheumatism, *have disappeared*, and the patient flexes the thighs sharply upon the abdomen without assistance and without complaint.

December 12th. Cervical discharge continues. Vaginal injection repeated.

December 14th. Improved. Secretion from cervix diminished and less purulent. The cervical membrane freely scarified, and acid reapplied. Has had no recurrence of the muscular pains. Sleeps well without an anodyne.

December 31st. Has menstruated during the past week without complaint. The vaginitis has disappeared. There still being a slight discharge from the cervix, the os was again scarified and the acid applied for the last time. She remained another month in the hospital for rest and tonic treatment, and was discharged, well.

CASE OF CONGENITAL UNILATERAL COLOR-BLINDNESS.¹

BY OTTO BECKER.

THE occurrence of congenital color-blindness confined to one eye has not heretofore been indubitably established.

In 1868 Niemetschek² described a case of unilateral color-blindness, which by many authors is viewed as congenital. But Niemetschek expressly says that the visual disturbances of his patient, a man of forty-six, had appeared but a few years before his examination. Vision, both near and distant, was poor in both eyes. Exact data as to refraction and visual power were not given. The patient himself observed that the shadows in a folded white handkerchief appeared to him green. He suffered beside from a central scotoma, which seems to have assumed complementary colors. No difference between the eyes was discoverable by the ophthalmoscope.

By repeated examinations it appeared that the right eye perfectly distinguished colors, but that the left, with the polarizing prism, while it saw red and green correctly, perceived yellow and blue as red or pink and green or greenish. This eye must therefore, according to our present arrangement, be classed as blue-yellow blind. In this particular it is of special interest, even if we must consider the color-blindness as acquired, since acquired blue-yellow color-blindness has scarcely been observed.

Niemetschek connects the lesion of the left eye with a depression extending over the parietal bone and right half of the frontal, and caused by a former cavernous tumor.

The second case of unilateral color-blindness which is regarded as congenital seems also suspicious. Woinow³ observed in a lady of thirty-four years, with normal visual power and slight myopia, a peculiar dis-

¹ From Graefe's Archiv, v. xxv. P. 2. 1879. Translated for the JOURNAL by J. F. Head, Surgeon United States Army.

² Prager Vierteljahrsschrift, page 234.

³ Graefe's Archiv, v. xvii. P. 2, p. 346.

turbance of color perception in the right eye. This, according to his examination, was green-blind, with a very pronounced photophobia, especially with regard to red colors. Whether this erythrophobia (*roth-furcht*), as he names it, affected one eye or both does not appear from his report. With the right eye alone the patient readily confused light green and dark pink (purple); all external objects appeared to her tinged with red; spectral yellow she designated as light blue. She was most comfortable with blue and bluish-green light. The visual field was also concentrically narrowed.

The patient had besides all sorts of hysterical sensations, and on the right parietal bone a depression of the size of a thaler, resulting from a fall six years before. To be sure, the photophobia and color-blindness would seem to have existed before the fall. Should we nevertheless be inclined to connect the color-blindness with this accident, it would be interesting to note that, unlike the preceding case, the injury was upon the same side as the color disturbance.

I had already, in the winter of 1873-74, had occasion to examine a girl, then twelve years of age, brought to me by her grandfather, who had remarked that with the left eye she could distinguish no colors at all, while with the right eye her color perception was perfectly normal. I examined the girl in the manner then customary with me, and particularly, as I will incidentally remark, with the worsted test, the color disk, etc. In company with Kirchhoff I also determined the limits of her spectrum, and the point of greatest brightness in it. It was then a matter of special interest with us to learn whether the physiological perception of brightness were the same in both eyes with equal illumination. For this purpose Kirchhoff constructed a binocular photometer so arranged that for comparison two strips of white paper, illuminated from the same source at different distances, were seen through a Wheatstone's stereoscope close together in the visual field. With this it appeared that the color-blind left eye required a stronger light to produce the sensation of equal brightness. By further experiments it seemed to be shown that the color seen with one eye differed from that seen with both. This surprising result led to the discontinuance of the examinations at that time.

A publication of Dr. Magnus in the *Ausland*, which the young lady's grandfather happened to read in the course of this winter, led him to communicate with our colleague of Breslau in relation to his granddaughter's peculiar faculties of color perception. I thus indirectly learned again the address of the girl, now grown to be a young lady. She as well as her grandfather had sufficient interest in the matter to permit a renewed accurate examination.

Miss L. S., seventeen years of age, comes of a family in which both unusually developed color-sense and also color-blindness have been observed. One of her mother's brothers is a celebrated artist in high repute as a colorist; another is color-blind. Her own color disturbance was discovered when Miss S. was a child of three years, by her asking her mother why the carpet, when she lay in bed upon her right side, had quite different colors from those which it showed when she lay on the left. As the pillow masked the eye of the side upon which she lay, the child saw only with the other. It could at that time be determined that in fact to the left eye everything appeared colorless. As the little one never before or since had any disease which usually produces disturbance of color perception, we

may conclude, with great probability, that the color-blindness of the left eye is congenital. The results of the more accurate examination reduce this to a certainty.

At present there is myopia of both eyes (right eye, myopia = D. 2.75; left eye, myopia = D. 3.00) with perfectly normal visual power ($V. = \frac{5}{6}$). Her hair is blonde, her iris grayish-blue; the young lady enjoys blooming health, and possesses more than ordinary intelligence. The ophthalmoscope shows absolutely no appreciable difference in the two eyes. The visual field is not contracted, and is of equal extent in both eyes; nor are any subjective perceptions of peculiar character announced. The distance between the pupils is fifty-six mm.

The examination of color perception gives the following: With a large Hoffmann's spectroscop *à vision directe*, the red end of the spectrum with each eye extends as far as with any normal eye. The blue end appears for the left eye to be a very little shortened, but the shortening is quite inconsiderable. The point of greatest brilliancy lies for the right eye somewhat to the right of the soda-line, for the left almost exactly in the soda-line. Through a green glass, the greatest brilliancy is moved somewhat to the right; a red glass does not change its position. By Stilling's method with colored shadows, red and green, as well as blue and yellow, are quickly and surely recognized with the right eye; with the left all shadows appear pure green, and are distinguished only by their degrees of darkness. These distinctions, however, are given with the greatest precision. Exactly the same results are obtained with the tissue paper, by Weber's method. The bright-colored letters, both red and blue, of the tables annexed to Stilling's Contributions, No. IV., Miss S. promptly recognizes at twenty feet and more. The tables of the new edition of Stilling's *Zur Prüfung des Farbensinnes* were also read: those adapted to blue-yellow blindness without any difficulty; those for red-green blindness with certainty, though somewhat more slowly. The letters and marks of the latter became very distinct when viewed through red glass; not so through green.

With Rose's colorimeter blue and orange, and also red and green, appear to her perfectly alike.

On Woinow's disk Miss S. recognizes only as respectively lighter and darker gray the colored rings which with the right eye she distinguishes quite correctly.

With Holmgren's worsted test she places with pure green other shades of green, flesh-color, bluish and yellowish greens, and pure red. Pale purple she matches with pure blue, purples of medium saturation, dark green, bluish green, and olive green; brick red with dark brown and bluish green, as well as with all colors containing any tinge of red. With this test it is highly interesting to observe Miss S.'s astonishment when the covered right eye is opened, and she is thus enabled herself to correct the errors which she has made. While with the right eye all the colors presented are distinguished, pointed out, and even named with the accuracy of a *virtuoso*, to the left eye everything appears only of a light or dark gray. It is very remarkable, however, that *brown* appears to the left eye as a color; indeed, this applies not only to worsteds, but to other stuffs, papers, oil and water colors.

The experiments with Maxwell's disks show that the left eye not only perceives as such all the matches for normal eyes, but that to any given gray a match

can be produced from two, three, or several colors at will, provided only that the right degree of saturation be hit. It is therefore of no interest to give the numerical values of the color matches obtained.

The experiments in binocular vision were specially interesting with reference to the results obtained in 1874. Ability to realize solid effects from stereoscopic pictures exists in a high degree. There is a surprising result, too, in the lustre tests.¹ If to the left eye be presented a red surface and to the other a blue, and then *vice versa*, in the first case blue alone and in the second red only is perceived; the same is the case with green and blue. And yet in all these tests an influence of binocular vision can be appreciated. That is to say, if the color presented to the left eye, whether red, blue, or green, be lighter than the color presented to the right eye, the color seen with both eyes is lighter than when the left eye is closed. As a check test, first gray and then black before the left eye were added to the blue before the right. The effect was in the first case a lighter, in the second a darker, blue.

Finally, I examined the differentiating power² of each eye separately and of both together by means of Masson's disk, and not only by rotating black strips on white disks and white on black, but with yellow on blue and green on red, and *vice versa*. From this it appeared that the distinguishing power of the left eye for black amounted to about $\frac{1}{100}$, that of the right eye to about $\frac{1}{125}$, and the binocular differentiation to about $\frac{1}{150}$. Compared with my own eyes, the amount for Miss S.'s right eye agrees with that of each of mine; but, on the other hand, my binocular distinguishing power is considerably greater, about $\frac{1}{175}$. Hence it is evident that the diminution of light perception in the left eye has a most precisely appreciable effect in binocular vision. The differentiating power found is greater than that elsewhere given.³

I propose to publish in another place, with further experiments, the more exact data regarding the separate series of examinations.

From all the foregoing there can be no doubt that in this case we have to do with congenital unilateral total color-blindness. I refrain from entering upon a detailed discussion of the facts reported, but yet will remark that the effect of binocular vision upon the color perception observed five years ago is fully explained by the renewed examination. The difference is not in the color, but in the shade of which it appears.

Since the occurrence of congenital unilateral color-blindness is established by this case, its rarity appears to me only the more doubtful. It is supposable that many cases have been overlooked, because both eyes are usually examined together as to their color perception.

As the subject of this case is a young lady from a family in whose male members also color-blindness occurs, the special examination for unilateral color-blindness of the female members of those families in whose male branches the occurrence of color-blindness has been ascertained should commend itself. Possibly we may thus find the key to the enigmatical overleaping of congenital color-blindness from the grandfather to the sons of a daughter not color-blind.

¹ "Glanz-Versuch." Vide Helmholtz, *Physiolog. Optik.*, 1867, page 782. — TRANSLATOR.

² "Unterschiedsempfindlichkeit." To those acquainted with the use and object of Masson's disk the above translation of this word will convey the author's meaning. To those who are not so no word would be intelligible in this connection. — TRANSLATOR.

³ Comp. Helmholtz, *Physiolog. Optik.*, page 315.

Reports of Societies.

PROCEEDINGS OF THE OBSTETRICAL SOCIETY OF BOSTON.

C. W. SWAN, M. D., SECRETARY.

A NEW INSTRUMENT FOR THE READY, EFFECTIVE TREATMENT AND PREVENTION OF BLOOD-POISONING IN SURGICAL OPERATIONS.

JUNE 14, 1879. DR. BIXBY exhibited the instrument, his own device, and read a paper embracing observations upon the subjects of pyæmia and septicæmia in surgical and other cases, with examples illustrating the use and value of the instrument. The paper will be published.

UTERINE AND VAGINAL INJECTIONS.

DR. RICHARDSON said that he agreed with Dr. Bixby as to the use of intra-vaginal injections. For the past six months in the Lying-In Hospital these had been the invariable rule in all cases where there seemed to be evidence of any septic absorption. Winckel claimed that a rise of temperature in some cases indicated absorption of poisonous matter from some solution of continuity along the vaginal tract; these points being sought out and touched with caustic the trouble would cease. Vaginal injections should be employed to avoid that absorption which, in Dr. Richardson's opinion, was one of the causes of puerperal fever. At the same time there is a liability to absorption at the placental site, or at some other part within the internal os. In a specimen which Dr. Richardson had shown to the society in the winter, there was a marked difference between the mucous membrane of the cervix and that of the body of the uterus, the former being perfectly healthy, while the latter, separated by a sharp line of demarkation, was seen to be broken down. Should a chill occur, especially with a marked elevation of temperature, he would at once resort to intra-uterine injections. He had seen the greatest benefit result from them, a temperature of 103° to 106° F. falling in two or three hours to 100° F., and again, if recurrence. The injection used was a mixture of carbolic acid and water, one part to ninety, used as hot as the patient could comfortably bear it, — about 116° F., — and in large quantity, or until the fluid came away clean, and repeated according to the symptoms, generally three or four times a day for two or three days, when, if there were no recurrence, they have been gradually left off. The injection has been made through a tube corresponding in shape to a male catheter, but perforated near its end with numerous small holes spirally arranged, for the better dispersion of the fluid; but should the os not be freely patulous a double catheter should be substituted. It is very rarely that there is not a decided fall of temperature within two or three hours after an injection, frequently not to rise again. Sometimes, perhaps in half the cases, the temperature will again go up, and the process will require to be repeated accordingly. Dr. Richardson stated that he did not use intra-uterine injections without special symptoms, but in case there were an offensive lochial discharge, with a rise in temperature which was not accounted for by the coming of the milk, such injections would be indicated. Vaginal injections, on the other hand, he used in all cases, both in hospital and private practice, as a preventive measure. Three