A report on the causes of blindness : and are the eyes of the offspring of the blind affected? Are their marriages fruitful? / by Simeon Snell.

With Compliments

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A REPORT ON

THE CAUSES OF BLINDNESS;

AND

ARE THE EYES OF THE OFFSPRING OF THE BLIND AFFECTED?

ARE THEIR MARRIAGES FRUITFUL?

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A REPORT OF THE CAUSES OF BLINDNESS

IN 111 INMATES OF, OR WORKERS AT, THE SHEFFIELD INSTITUTION FOR THE BLIND, WITH REMARKS.

THE present report is based on an examination of the children or young people, inmates of the Sheffield Blind School. Generally speaking, shortly after admission, each scholar has been examined by me, and thus, with one or two exceptions, each case has passed under my direct observation. The medical certificates with which each applicant for admission has to be provided, though answering well their immediate purpose, are, generally speaking, too vague to render much aid to scientific inquiry. Where it has been possible to clear up doubtful points by communicating with the children's parents or friends, it has been done; but, in some instances, among inmates coming long distances, from the North or South of England, this has been impossible. Care has, however, been taken to render the report as accurate as circumstances permitted. The numbers have been increased by an examination of the workers at the Workshops for the Blind, a part of the same institution.

Since the Blind School was opened, I have records of 76 cases; from this number, 3 are excluded from consideration, as not having been seen by me, or for other reasons, thus reducing the total to 73. Of this number, 41 are males and 32 females.

At the Workshops, a total of 46 are employed, and all have been examined. Eight had, however, been already noted whilst previously attending the Blind School, and the number is consequently reduced to 38. Nine are females, and 29 males. The eight excluded were also males. The scholars, with one or two exceptions, are all under 15 years of age, and it is required that each should be of good health, and free from fits and mental or other afflictions, that would interfere with educational work, prior to industrial training. At the Workshops, competency to learn and to perform the work undertaken would appear to be the only requirements for admission.

The series of observations recorded as to the causes of blindness in any given number of persons so afflicted are not many, and fewer are those in which each individual case has been examined by the writer. I trust, therefore, that the present report, even with the limited number treated of, may be of some interest and value. I will proceed to separate into groups the various cases.

Ophthalmia Neonatorum.—Among the inmates of the Blind School, in no fewer than 27, blindness can with tolerable certainty be assigned to this disease as a cause, and in one in all probability so; making a total of 28, or 38.3 per cent. At the Workshops, the number is 10, or 26.3 per cent. The difference in percentage between the blind of the two establishments appears just what would be anticipated. For in the Blind School, all are young people, with very few exceptions,

under 15 years of age ; whilst at the Workshops are adults of all ages, amongst whom, increased age, the causes of blindness from occupation or otherwise, have come into play, and necessarily have reduced the percentage. The number, out of the total of 111 at the two establishments, afflicted from this disease, is 38, or 34.2 per cent.

A point which may be mentioned in passing, is the greater number of males blind from ophthalmia neonatorum than females. In the Blind School, the numbers are 17 males, 11 females ; at the Workshops, 7 males, and 3 females. The greater number of males among those generally under consideration may, of course, be held to account for this difference ; but does it do so altogether ? Among the last 78 cases of this disease registered at the Sheffield General Infirmary, it would seem that 42 were males and 36 females, again a difference in favour of the male sex.

Blennorrhœa in Adults or Subsequently to Infancy.—Three cases at the Workshops, or 7.9 per cent., would appear to come under this head, two males and one female. A female, aged now 31, suffered from the disease at 13, and has undergone operations (iridectomies ?) in both eyes without benefit. A male, aged 48, suffered from ophthalmia in the East Indies as a soldier ; now there is corneal staphyloma and general symblepharon ; the right eye can see fingers. The other man, aged 36, states that he lost his sight from contagious ophthalmia at 8 years of age ; many other children suffered from the same disease at the time. The appearances of the eyes do not altogether bear this out. The case is one of interest. In February, 1877, he was under my care in the Infirmary. The cornea and the media were sufficiently clear to enable a good view of the fundus to be obtained ; a whitish yellow-looking appearance was observed even without the ophthalmoscope, but particularly with its aid. No vessels were traced over it, but its surface was irregular. The diagnosis suggested, of ossification of the choroid, was rendered more likely by palpation of the globe. Towards its posterior part, it felt quite hard and solid when touched with the fingers. The eyeball was at times irritable and painful, and it was therefore enucleated. On the interior of the eye being examined, it was found occupied by a large stout shell of bony deposit, thicker posteriorly, where was an aperture corresponding to the optic nerve entrance of the free, and thinner at its anterior edge. It reached to some little distance behind the ciliary processes. The condition of the left eye in June, 1885, was as follows :—There was a large leucoma, which, however, left a part of the pupil free ; there were myopia and large crescent ; he had large pigmentary irregularities in the fundus (bony deposit), but view was difficult.

Osseous deposit in an eye is frequently met with, but a case in which, during life, the media have remained clear, and for the condition to be diagnosed, is rare. Mention may be made of a case recorded by Professor Laqueur, of Strasburg, in Knapp's *Archives of Ophthalmology* for 1878 (vol. vi). A diagnosis of osseous deposit was made by the ophthalmoscope and by palpation, but enucleation was not resorted to.

In the Blind School two cases, where the eye was lost in early life, seem to come under this class. Both are males. One lost his sight at sixteen months, "cutting his corner teeth," the other at eight months and a half.

Sympathetic Ophthalmitis.—At the Blind School, there are six whose blindness may be assigned to this disease, or 8 2 per cent. The ages at which the exciting eyes were injured were 12, 7, 14, 4, with a subsequent injury at 8 (probably the really exciting hurt), 11, 14. The injuries were caused in the following ways : by a knitting needle, in one case ; blow from a stone, in one ; hit with a stick, in two ; a piece of pot, in one ; in one, also, after typhoid fever, in which the cornea was destroyed (hypopyon ulcer), an iredectomy was attempted,

and, failing to remove this iris satisfactory, the ulcerated cornea was incised. In all the cases, the exciting eye was enucleated.

The time when the disease was set up in the sympathising eye is very uncertain, and should be stated in this way. In one case, the exciting eye was removed six months after the injury, and the other organ had been affected for some time, though, five months afterwards, he could still see to read with it ; another (hypopyon ulcer), about two months ; in another, up to eleven months after injury, the other eye remained good ; in the others, no time is assigned, or very uncertainly.

In the Workshops, there are four cases of sympathetic ophthalmitis, or 10.5 per cent. The ages at which the accident to the exciting eye occurred were 22, 22, 21, 16 ; and the injury was occasioned by bursting of a ginger-beer bottle ; the point of a scissors ; a piece of steel penetrating the eye ; a knife-blade projecting from machinery. In two only of these cases were the globes enucleated. The length of periods elapsing after injury, before the sympathising eye became affected, is thus stated. One commenced within the first two months, but sight was not entirely lost for two years ; another began to fail a month after ; and the other two at three weeks and six weeks.

There are 5 males and 1 female at the Blind School ; and, at the Workshops, 3 males and 1 female. Of the whole number, 6 are right eyes and 4 left. Of the adults (4), in only half of the cases was the injury associated with their employment. Taken together, the early age at which all were attacked appears to favour the opinion that sympathetic ophthalmitis is more likely to occur in injuries among the young.

I may mention that one inmate of the Blind School, in whom the acuteness of the attack had long passed, was admitted into the Infirmary under my care, and, after two operations, sufficient iris was removed to give him a useful pupil. There was occlusion of the pupil, and the lens appeared to have undergone absorption. He was, with a glass, enabled to read Jäger 2, and soon left the school to learn to earn his livelihood as a sighted worker.

In all, there were 10 cases of sympathetic ophthalmitis, out of a total of 111, or 9 per cent.

Accidents, simultaneous to both eyes, and resulting in blindness, afford three instances at the Workshops, or 7.8 per cent. They are all males. 1. Now aged 42 ; accident at age of 34 ; was blasting stone. 2. Aged 64 ; accident occurred twenty-five years ago, whilst blasting stone ; a piece of stone stuck in the right eye ; the left retained a glimmer of sight for some time. 3. Aged 62 ; accident twenty-seven years since ; whilst sinking a coal-shaft and blasting, powder struck his face ; he "never saw again ;" powder-marks on his face. In each case, the corneæ in both eyes were completely destroyed ; and one eyeball in the first case, and both in the third, were adherent to the upper eyelids.

Lime entering the eye appears to be the cause of blindness in one case at the Workshops. The man is now aged 54. At 3 or 4 years of age, he got lime in his eyes, and sight gradually went ; he could continue as a labourer until 19. There are now xerosis of the cornea and conjunctiva, general symblepharon, and ingrowing eyelashes, for which he has undergone operation ; the use of vaseline has enabled him to find his way about.

Small-pox is answerable for blindness in three cases at the Blind School, or 4.1 per cent. One case was not vaccinated, and had the disease when eighteen months old. Another, much pitted, had small-pox at three weeks, and is said to have been vaccinated after having the disease. The third case was only vaccinated in infancy, and has four fair marks, and was 16 years old when she suffered from small-pox. Two where males, and one a female.

At the Workshops, two assign their blindness to this disease, or

5.3 per cent. One had small-pox at 10 years of age ; she is uncertain as to vaccination, but no marks are to be found ; she is much pitted. The second case was not vaccinated. There was one female and one male. As to this last case, it should be mentioned that it was the left eye that was lost completely by the attack of small-pox. The right eye was, he says, unaffected by small-pox, but my recollection is that, when he came to the Infirmary some time since, there was a small leucoma (adherens ?). On April 3rd, 1882, he was iridectomised for acute glaucoma ; sight was nearly gone, a little vitreous humour escaped (he was a most unruly patient, and declined an anæsthetic); ultimately, the globe shrank.

Altogether, the total number of cases blind from small-pox is five out of the 111, or 4.5 per cent.

Scarlet Fever occasioned one case of blindness at the School, or 1.3 per cent. It was a male, and occurred at 9 years of age. At the Workshops, there was one case, also, and it happened to a female, again at the age of 9. The percentage is 2.6, or, of the total of 2 in 111 cases, 1.9 per cent.

Measles at the age of 11 months rendered one female at the School blind, or 1.3 per cent. There is no case at the Workshops.

Fever, probably typhoid, is assigned as the cause of blindness at the School, in a female, at 15 years of age, or 1.3 per cent. There is no case at the Workshops.

Cases of Congenital Blindness : Cataract.—At the Blind School there are five inmates whose blindness is traceable to this cause, or 6 8 per cent. All have undergone operations in both eyes, but in all the cases the operation would appear to have been delayed until late. In two the age is known fairly well, and was about 8 years ; another seems to have been near 10 years of age. Three have been operative successes, and they possess faint vision for large objects ; one appears capable of improvement ; four are males and one a female.

At the School, also, there are 7, or 9.5 per cent., other cases of congenital blindness. They are as follows:—

1. Congenital hydrophthalmos ; the right eye has been iridectomised ; the left burst, and then dwindled whilst an inmate ; she died of phthisis.

2. The parents and medical certificate say "born blind," the exact cause doubtful ; the eyeballs are small ; the cornea in each is clear, but small. No operation has been performed as far as information goes.

3. Both optic discs are atrophied ; irregular edges suggested a preceding neuritis ; there is bare perception of light ; is said to have been born blind.

4. Constant nystagmus ; pigment-patches in each fundus ; discs atrophied, right bluish white ; known to be blind at three months of age.

5 and 6. A brother and sister, aged at the time of examination respectively 14½ and 13. In both, the optic discs were perhaps a little pale, and the vessels were thought to be small but there was no marked change in the fundus ; in the girl there was nystagmus. A communication (at the time of writing) from the father leaves no doubt as to their both having been born blind. The elder one (boy) was early seen by Sir William Bowman, who testified that there "was no light-perception." The parents had four other children, one a boy, preceding the two here mentioned, and three children succeeding, and all possessed good sight ; the father and mother were not relatives before marriage. The boy is "far from being bright intellectually" ; the little girl is somewhat crippled and dwarfish for her age, is of a bright and happy disposition, but not, I fear, very quick at learning. Hearing in both "is tolerably good." A cousin of the children's father (their grandfather's sister's daughter) had a blind boy and girl.

It was the knowledge of this coming to the mother during pregnancy that is assigned as the cause of the blindness in the elder, and the thought of the misfortune to the other as the cause of the younger. There is no other blindness in the family, nor have they intermarried; neither father or mother suffered from any nervous disease. Another case at the school would also appear to be congenital. Three of this number were males, and four females. The total number of cases of congenital blindness is 12, or 16.4 per cent. None under this class are found among the cases reported at the Workshops.

Optic Atrophy.—At the Blind School, 11 owe their affliction to this cause, or 15.2 per cent.; 9 of this number are females, and 2 males. One lost her sight at 21, and another at 11 ; the others generally when aged 4 or 5. As far as can be ascertained, the histories resembled those of meningitis—in one, the blindness occurred after whooping-cough (a fit), and another had a blow on the head with a shovel when aged 2.

At the Workshops, there are 8 blind from atrophy of the optic nerve; or 21 per cent. One man, now aged 26, lost his sight at 7 years of age, during scarlet fever; another, now aged 35, at 14 was knocked down by an engine, lost his senses, and when consciousness returned, he could not see, and his mind was affected for eighteen months. Another, also at 15, lost his sight with head-symptoms; he was a file-cutter (saturnine neuritis?). The only female among this series became blind at 19 ; she was under observation with double optic neuritis, passing into atrophy ; cerebral and specific indications were present. The ages at which the others lost their sight were 43, 27, 22, and 20. The last was struck on the eye by a piece of grease. He lost consciousness for a time; there was no vomiting; the sight of the left eye was lost immediately; of the right, about three weeks later. There was no evidence of injury in the fundus of the left eye ; both optic papillæ were papery white.

The 19 cases in all comprise, out of the 111, a total of 18 per cent. It is worthy of remark, that in three of these instances, there is a history of head injury.

Cornea.—Affections of the cornea are responsible for 5 cases at the Blind School, or 6.8 per cent. There are 2 males and 3 females. Two of these instances here resulted from interstitial keratitis; one is absolutely deaf. Another case had corneal staphyloma ; the globe was painful, and was excised by me before admission into the school ; the other eye had cornea fistula, and the little sight then possessed rapidly failed. She died of erysipelas. The other two are stated to have lost their sight whilst "teething," one with leucomata, possesses fair sight after iridectomies by Dr. Little, of Manchester, and myself; in the other, the globe (left) is shrunken ; an operation had been performed on it in London ; the right cornea is cloudy, the pupil closed; it looks as if iridectomy had been attempted.

At the Workshops, there is one case suffering from the effects of diffuse keratitis. The left cornea is fairly clear, the right still nebulous ; she possesses fair sight.

Iris.—The only case coming under this head deserves longer notice ; it is one of irido-choroiditis associated with blanching of the eyelashes. He is employed at the Workshops. In March, 1877, he came under my care at the Infirmary. He was then the subject of irido-choroiditis in both eyes. He had first noticed something wrong with his eyes sixteen months before ; the left commenced about a fortnight before the right. The eylashes in both eyelids, on each side, were observed to have become whitened. This alteration in the eyelashes had been first noticed two or three months before coming to me. The colour of the hair and eyebrows was brown. I showed the man (then aged 21) to the members of the Sheffield Medico-Chirurgical Society, on March 15th, 1877, as a "probably unique case." A little later

he went to Moorfields, and was under the care of Mr. Jonathan Hutchinson, who has referred to the case in his lectures at the Royal College of Surgeons. Two iridectomies were performed on the right eye. Now (June, 1885) the right globe is shrunken ; in the left eye, the pupil was plugged ; the iris bulged forward ; there is no perception of light. The eyelashes still remain whitened on both sides ; in the upper eyelids, a few darker ones are interspersed.

I will close this report by referring to miscellaneous cases, which I do not otherwise classify.

Coloboma of Iris and Choroid.—The subject had been always defective in sight ; at 20, he was struck by lightning, and lost sight, in a few days ; he is now aged 47. In both eyes there is coloboma below of iris, reaching through the choroid. In the right eye, it embraces the optic disc, and affects the sheath. He declined to allow a mydriatic to be used for a thorough examination.

Retinitis Pigmentosa.—A male, aged 43, had nyctalopia as a child. He could read up to 12 years, holding the book very near. His sight gradually failed, and he has worked in a blind factory for more than twenty years. There was a large quantity of pigment in each fundus, reaching close up to the discs, which are white and waxy-looking. There are hypermetropia and nystagmus. His father and mother are not relatives ; vision of the family is good.

Choroido-retinitis.—The subject is a male, aged 42. His sight commenced to fail at twelve years of age ; specific history is denied. In both eyes are atrophic and pigmentary patches ; the right eye is less opaque and has perception of light, the left lens is becoming opaque and the vitreous humour cloudy, preventing a perfect view of the fundus ; perception of light is defective. He was under observation many years ago.

Hydrophthalmos and Cataract.—A female, aged 38, has been blind since 4½. The right eye is hydrophthalmic, and has no perception of light. In the left the lens is opaque, the pupil active ; there is good perception of light. Her condition, it is possible, might be improved by operation.

The following are among the inmates at the Blind School :

In a boy aged 7 : "One eye was extracted at 18 months, and the other at 3½ years, for cancers," so says the medical certificate. The case was not seen by me, and no further information is obtainable.

Another boy, aged 8½ years, lost his sight at 12 months. There is nystagmus, and examination is very difficult ; in each fundus are large pigmentary patches ; the discs are atrophied.

Malingering.—This case, a girl, aged 18½, operated on by Mr. Higgens, for squint (left eye), was sent from a London workhouse, as totally blind. Shortly after admission to the Blind School, sight commenced gradually to recover. When she was examined, hypermetropia was found, and excellent vision ; the left eye was amblyopic. She has since done work at the School, as general servant. I think it likely she feigned blindness at the workhouse, to avoid work, and that she found the education of the blind more irksome than anticipated, and gradually recovered vision.

In conclusion, I must acknowledge the kind services rendered in the preparation of this report by my friend, Mr. J. R. Turner.

ARE THE EYES OF THE OFFSPRING OF THE BLIND AFFECTED? ARE THEIR MARRIAGES FRUITFUL?

THE following paper will serve as a complement to my Report on the Causes of Blindness in the inmates of, and workers at, the Sheffield Institution for the Blind (BRITISH MEDICAL JOURNAL, vol. i, 1886, p. 387). These additional inquiries were undertaken, when my other task was well nigh completed, to ascertain, as far as the limited numbers allowed, the influence upon the offspring of the marriage of the blind. In every instance, to my inquiries as to sight and the formation of the eyes of the children, I was assured that vision was perfect and the ocular condition normal. A similar answer was returned to questions respecting hearing and bodily deformities. The latter were absent, and hearing was always stated to be good. It must be mentioned that none of the children were inspected by me, but I held myself in readiness, had there been in any instance a suspicion as to the condition, to visit and examine such an one. The necessity did not appear to arise.

The results obtained are somewhat at variance with those recorded by other observers. Magnus investigated fourteen instances of married couples in whom one or both were born blind, or became blind at an early age; and found that, out of thirty-four children begotten of these marriages, eight, or 23.5 per cent., were either blind or weak-sighted.

He mentions, moreover, that a man who had lost his sight by blennorrhœa neonatorum had two children affected with microphthalmus. Fuchs states that he was acquainted with a physician who had congenital microphthalmus of right eye, and whose father had lost an eye by irido-cyclitis, when a child. He says, also, that the connection of the eye disease between father and child is indubitable, for Deutschmann obtained analogous results in his experiments on animals. I give below, in a tabular form, the various families, sixteen in number, as complete as my information permits. The numbers are too small to be anything else than an instalment to an interesting inquiry. As to the case of retinitis pigmentosa, no evidence was elicited of children suffering from nyctalopia.

Another point will hardly escape notice, and that is the small proportion of births. The experience of managers of blind institutions is that the workers are very disposed to wedlock; and this notwithstanding that, in consequence of the small wages they can necessarily earn, marriage is, at all events in some places, discouraged.

Of those couples who were both blind, after excluding the recently married, there are three, and only one has children (two). The young man (R.), has had two blind wives, and neither has borne children to live; the triplets by the first wife died immediately after birth.

There are ten men with sighted wives, and excluding one whose wife

had ceased to bear children before his blindness came on, there are left nine, with twenty-six children between them, or less than three per family. Adding to this number the three blind couples with two children, there are a total of twelve, with twenty-eight children, or two and one-third per family. It would almost seem, therefore, that, though prone to marry, such marriages are less than usually fruitful. Farr placed the number of children per wife in England as 5.2.

Name, Age, etc.	Cause, etc., of Blindness.	No. of Children.
	WIVES SIGHTED.	
M., 32	Optic nerve-atrophy, five years; married two years	None
P., 43	Blind ten years; retino-choroiditis; married twenty-one years; three children	None since blindness
H., 54	Lime in eyes, in childhood, destroying sight; married at 26	Two
J., 48	Blind at 16; injury to left with penknife; right sympathetic ophthalmia; both globes shrunken; married at 20	Six
F., 26	Optic nerve-atrophy after scarlet fever; blind at 7; married at 19	Four
J., 47	Lost sight at 22; right injured by scissors; enucleated; left sympathetic ophthalmitis; globe shrunken; married at 18; eight children, six after blindness	Six
H., 64	Blind, through "blasting," at 36; first married at 21, no children; secondly married at 41, one child	One
W., 43	Blind from 12; retinitis pigmentosa; married at 19	Three
H., 42	Sight lost eight years, blasting stone; married twelve years, one child (born since, blindness)	One
B., 45	Optic nerve-atrophy; blind at 25; married first immediately after blindness, three children, died between ages of 3 and 4; married second time, twelve years, no children, wife had three by former husband	Three
	WIVES BLIND.	
R., 30	Blind at 22; irido-choroiditis, "white eyelashes;" married first at 27, triplets, died a few days after birth, well formed as to eyes, etc.; married second time, two years, no children; wife had two by previous blind husband, both see	None to live
J., 56	Optic nerve-atrophy at 45; married first at 24, one child, died a few hours after birth; second time 18 months, no children, wife blind from ophthalmia neonatorum	None
S., 46	Blind at 21; piece of steel struck right eye; enucleation; left sympathetic ophthalmitis; first married at 28, wife blind, two children, died under a year, vision, etc., good; second married at 33, wife sees, no children	Two
H., 27	Blind in infancy; ophthalmia neonatorum; one child, premature (six months), married a year	
P., 37	Ophthalmia neonatorum; right eye sees fingers and large objects badly; married six weeks; wife blind at 10, from small-pox	
Not at Institution	Wife married to husband born blind, nine months; right hydrophthalmos; no perception of light; left lens opaque	

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