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ON THE RELATIONS OF SOME OCCUPATIONS TO EYESIGHT.[1]

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SIMEON SNELL, F.R.C.S.Ed.

Ophthalmic Surgeon to the General Infirmary.

THE subject of the relation of occupations to eyesight is both interesting and important, but it is at the same time a very wide one. It would be quite impossible in the time at my disposal to treat the matter at all exhaustively. It was the fact of the largeness of the subject that somewhat deterred me when asked, in the first instance, to bring the matter under the notice of this section. I am compelled, therefore, to confine my remarks to some occupations only, and have selected instances generally in which opportunities have presented themselves to me for making observations as to the work performed and its action as regards the men's sight.

TOXIC AMBLYOPIA.

Several substances are now known to cause amblyopia, and some of these do so by acting injuriously on those engaged in employments in which they are used.

The effect of bi-sulphide of carbon has been shown by many instances. In 1885, the subject received full consideration at the

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[1] A paper read at the Annual Meeting of the British Medical Association, Bristol, August, 1894.

hands of a committee of the Ophthalmological Society.[1] The employment in which those suffering have been mostly observed has been that of rubber making. The bi-sulphide is a very active and penetrating solvent and it is used as a means to dissolve and carry into the rubber, chloride of sulphur, which is the vulcanising agent. This process is called "curing," and it is during it that the fumes of the bi-sulphide are given off and act injuriously on the general system in those exposed to them, as well as in some cases by causing amblyopia. Recently, I had an opportunity of visiting rubber works in which about 200 hands were employed. I then saw the process of "curing." The rubber cloth which it was wished to vulcanise, was brought into contact with the wet surface of a wood or slate roller which revolved in a trough in which was the bi-sulphide holding the sulphur in solution. The shed in which the "curing" was done was a very open one, and was well calculated to allow of the ready escape of the fumes. I was told, however, that the vapour was a heavy one and tended very much to keep low especially in wet or damp weather. Any apparatus to carry off the fumes, therefore, should be one to draw them downwards. I saw several men who had worked with the bi-sulphide for varying periods; ten, seven years, and down to months. One man had undoubtedly two years ago suffered from amblyopia, which appeared to have been characteristic. He changed his work to another part of the factory and recovered. A considerable alteration has, I am told, been brought about in the vulcanising process. Since the time when the Committee of the Ophthalmological Society reported the bi-sulphide has been very materially less employed in rubber works. The sulphur is now mixed with the rubber and the vulcanising is done by subjecting the otherwise finished article to a high temperature. The bi-sulphide in the future is even less likely to be required and therefore, in this class of occupation, at all events, we may expect that amblyopia will be more infrequent.

My observations on the effects of dinitro-benzol[2] on the health and especially upon the eye-sight of those working with it have

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[1] *Transactions of the Ophthalmological Society.*
[2] *British Medical Journal*, March 3, 1894.

only recently been put on record, and the briefest notice will therefore now suffice. The occupation in which the dinitro finds use is in the making of explosives. Those affected were chiefly engaged in "mixing" or "grinding" the material; they suffered often severely from general symptoms of a most alarming character; the cartridge "fillers," and to a less extent the "dippers," suffered likewise. The investigation was undertaken in consequence of a patient engaged in the making of this explosive substance seeking advice for defective sight with the characters of toxic amblyopia, and altogether I found five cases of this nature. The symptoms generally had much in common with those of poisoning with bisulphide of carbon. I have before dwelt upon the means which are advisable to avoid the deleterious action of the dinitro, and like the other members of the toxic amblyopia group, removal of the cause is desirable, and the treatment is the same.

Tobacco, which was the first agent to be recognised as causing toxic amblyopia, and which has since been such a fruitful source of this kind of optic nerve failure, can hardly be classed with occupation disorders. Galezowski ("Des Amblyopias et Amauroses Toxique," 1879, p. 47), however, asserted that visual troubles occurred in those engaged in the manufacture of tobacco in consequence of the absorption of nicotine powder. He further advised that the working places should be well ventilated and recommended a change of occupation for those affected. I cannot recall any corroboration of this statement by other observers.[1] There is, however plenty of evidence opposed to it. Mr. Shears (*British Medical Journal*, 1884, vol. i., p. 202) relates that he visited the large factory of Cope Brothers, where 1,200 men and women were employed, and that he made careful enquiries in each of the departments of the foremen, but from none could he learn of instances of sight failure. Mr. C. Lee at the same time made observations at a large factory at Chester, with similar results. I do not think my experience of great value, but just mention it. Sheffield is celebrated for its snuff, the two kinds, Top Mill and Bottom Mill, being well known.

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[1] In the discussion on this paper Dr. de Schweinitz, of Philadelphia, U.S.A., related the case of a girl, a non-smoker and non-drinker, whose occupation necessitated her having the arms immersed in tobacco juice, and she became afflicted with typical tobacco amaurosis.

There are also several smaller tobacco works about the city, but my attention has in the last twenty years never once, I believe, been directed to a case of tobacco amblyopia in a worker at any of these places. Recently, in America, Dowling has gone into this matter (*Cincinnatti Lancet Clinic*, October 29, 1892, "Influence of Tobacco on Vision;" some Investigations made in Tobacco manufactories of Cincinnatti). There were 3,000 employed altogether at the manufactories he mentions, half being females. Ninty per cent. of the males used tobacco in some form or other, and 20 per cent. chewed, in addition to smoking liberally pipe or cigar. This is how he gives his conclusions: "When I commenced my examination I was under the impression that the constant inhalation of the dust and the odour of tobacco in the workshops would tend of itself to bring about symptoms of tobacco amblyopia. I am induced to think this hardly takes place, for in my examination I found those who did not smoke were uniformly free from troubles of vision of a toxic nature, and the females were almost universally free from the trouble, that is as far as I examined them." It should be stated that he examined of the total 5 per cent., or 150.

Iodoform, by the cases of Priestley Smith and Valude, must be added to the agents causing Toxic Amblyopia. I am not aware of any investigations showing its occurrence in those employed in its manufacture. It is being, I understand, made largely in England as well as on the Continent, and enquiries which have been made for me state that no cases have been known of eye mischief due to the manufacture of iodoform.

There remains lead to be mentioned. In the variety of occupations in which lead is used its influence on sight comes under our notice either as causing optic neuritis, directly or indirectly, as a part of encephalopathy, or yet again as retinitis albuminurica, as a consequence of renal disease induced by the lead. The occupations in which all these may be met with are almost legion. Among the file-cutters we meet with cases in Sheffield. The way this occurs is that the file is placed on a lead bed, and each time it is struck with the chisel sufficient of the lead is raised which by inhalation or absorption in time induces the features of lead poisoning in its varied forms. I have met with

cases of optic neuritis apart from central disease among these file-cutters as well as in association with brain mischief. One of the last was in a girl with optic neuritis and palsy of the left abducens, but with no evidence of intra-cranial disease, and in which complete recovery resulted.

Intense Light and Excessive Heat.

These two are important features in many occupations. Dr. George Mackay has recently collected into a most interesting series,[1] the cases, which have from time to time been recorded, of blinding of the retina by the direct action of sunlight. He there alludes to a case of mine in a youth, who after looking at the blazing sun with a telescope, suffered from a permanent central scotoma. It has seemed to me that these cases can be perhaps explained by supposing that the dioptric media have acted in a somewhat similar manner that a burning glass does, and in this way the lasting effect is produced in the macula and fovea.

These cases are, however, quite different to what is met with in those exposed in their occupations to intense light, associated in many instances with very high temperatures.

Glass blowers are asserted to be frequently the subject of cataract,[2] and it has been sought to connect this tendency with the powerful heats to which their work exposes them, and also to the sweating which accompanies it. I have seen something of glass blowers from time to time, and my experience, whilst it does not allow me to support this assertion of the frequency of cataract among these men may be regarded as too limited to contradict the statements which other observers have made. If, however, the two features mentioned—heat and loss of moisture—are to be regarded as sufficient causes for the production of cataract, then it should be found especially also among iron and steel workers who, in addition to higher temperatures, are exposed perhaps to as much sweating and to more intense glare than are glass blowers, and I have no evidence of these workers being especially prone to lens lesions.

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[1] *Ophthalmic Review*, 1894.

[2] Dr. Landolt (Paris), in the discussion, said he had no doubt, from his experience as to the frequency of cataract in glass blowers.

I propose to consider some of the aspects of heat and bright light, as regards occupations with which I am familiar.

There is first the brightness of the metal worked upon. Silver, either the metal or electro, when finished has a very highly reflecting surface. Some years ago a girl, who was under my observation, in passing along the streets had flashed upon her the brilliant sunlight reflected from one of these bright surfaces. She suffered in the eye which had been caught by the light, from a neuro-retinitis, but made a good recovery. I mention this case merely to indicate the bright reflecting surfaces which some workers have to deal with. To be brought to the proper polish, silver or electro goods pass through various stages, but the most important for our purpose now is the finishing one of "burnishing."[1] This is usually done by girls, who so work on the surface with a blunt tool, that it makes it very bright (plate, fig. 1). These girls are frequently the subjects of hyperæsthesia of the retina, by which they are often compelled to relinquish the work entirely. Coloured glasses and correction of refractive errors, help in some cases. A similar sort of disorder I saw some years ago in a woman who handled many pounds each day of silver coin. Counting it over at night as each man brought in the amount earned with his cab, was what she found trying to her eyes, and which coloured glasses did not relieve.

Excessive heat associated with intensity of light is met with in iron and steel works in the different processes connected with making of the iron and converting it into steel. There is, I think, no definite evidence that men exposed to the heat and glare of the furnaces or from the molten metal, suffer in their eye sight. It is a subject about which I have for some time been interested, and friends attached to the large works for which Sheffield is so famous, have afforded me facilities many times of witnessing the different processes, and have given me valuable information. The men are, in consequence of the heat, prone to sweat a great deal, and frequently wear little clothing above the waist. The temperatures before which they work are to an outsider something almost astounding, especially if he remembers that the temperature of an

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[1] Those engaged in the process called "buffing," suffer in a similar manner.

ordinary well-lighted fire in a grate is about 500°F. Now, I am told there is a very marked difference in the way a temperature is borne when it is below 2,000°F., and when above it. Up to that figure a man can look at the metal in a furnace with comparative ease, but before it gets to 3,000°F. he is compelled to wear coloured glasses when doing so. My friend, Mr. W. H. Ellis, of the Atlas Works, has kindly given me the following data as to the heat of the metal. "In dealing with cast iron the heat of the metal would be about 1,800° to 2,000°, and the men employed take no precautions. The heat of the molten steel would be about 2,700° to 2,800°, while the heat of the gases in the furnace would be about 200° or 300° more. The furnace men have to wear deep blue glasses to protect their eyes from the glare of the furnace. With this precaution we have not observed their eyes to suffer in any marked degree. The heat of Bessemer metal is about 3,000° to 3,200°; in this case there is not the same necessity as in the Siemens to watch the hot metal, and the men do not wear glasses. We do not observe any ill effects directly traceable to the heat. In the case of the Siemens men, I should say that without protection the eyes would suffer considerably. After looking at a Siemens furnace without glasses, it is several minutes before the eye can see ordinary things again." There is, moreover, a further difference between the two processes, viz.:—Bessemer and Siemens. The former has, as just mentioned, the higher temperature, and the more dazzling glare, but the steel is melted and the process completed in about twenty minutes, and it is only necessary for one man to take close observations, and this he does by means of a spectroscope, and is as far as 30ft. from the molten metal. The Siemens process takes ten hours, and during this period the whole of those engaged will, as the door is frequently drawn up, be taking observations to see whether the melting is proceeding properly. This is constant and regular work, and they are obliged to use coloured glasses. They will stand about 10ft. from the furnace.

In addition to all this in these large works are the castings, forgings, rolling of armour plates, and many other things. A huge forging, of perhaps 60 or 80 tons, is drawn out of a furnace with a temperature of from 2,000° to 2,500°, and placed under a powerful hydraulic press of 10,000 tons power, where, with the men all

around it is hammered with as much apparent ease as putty is manipulated in one's fingers.

Enough has been said to illustrate the high temperatures of these furnaces or huge masses of metal. I have been unable to learn of any photometric observations as to the intensity of the light. The glare and dazzling in the Bessemer and Siemens processes must be seen to be realised. Generally speaking, in fact, almost always, it would seem as if the men engaged in these various kinds of work could submit to exposure to the high temperatures and intense lights with impunity if they will only use coloured glasses when employed with the higher temperatures and the more dazzlingly bright lights. Occasionally one meets with men who appear incapable of continuing to bear these conditions. They feel their eyes to be painful, and it is some time after cessation of labour before the discomfort passes away. Such as these have sometimes to seek another occupation. On the other hand, the readiness with which—it may be after an accident to one eye—men will return to their employment before the furnace or fire has often astonished me. I could not tell of any particular lesions to which my experience tells that workers such as these are liable. They appear to go on year after year, and certainly—interested as for long I have been in occupation sight affections—I have as yet failed to discover any deep or superficial eye lesion that I can associate in steel and iron workers as a result of exposure to intense light and excessive heat. Some years ago, a gentleman, a steel melter, told me that after looking into a furnace he suffered from severe attacks resembling migraine. He was a neurotic subject, and often had headaches, but those caused by the bright light and heat, one or both, were much more severe and of longer duration than those from any other apparent cause. It compelled him to leave this part of his business entirely alone.

Electric Light.

The many and increasing ways in which the electric light is being used, renders it in consequence of the injury it inflicts upon sight, important to consider with regard to occupation disorders. Rockcliffe, Emrys Jones, and Little, several years ago pointed out

the serious effects on the eyes of those exposed to the glare of this powerful light; and since then many of us have observed instances. In the recent number of Knapp's "Archives of Ophthalmology," [1] two cases are reported by Brose of men affected by the flash of the electric light. Both were employed on an electric street railway. One man thrust a blade of a screw driver into a motor cylinder and "immediately he was flashed by the powerful light and stunned by the powerful current." When seen five hours after the eyelids were closed and he was suffering intense pain, but he was able to resume his work next day. The second man struck a "live electrical circuit" with a steel file, and instantly there was a flash of light and he was rendered unconscious. The eyelashes were singed and the arms burnt, and there was great eye pain. It was not until the fifth day that he could return to work. But a much more severe case is reported in the same journal by Rivers. The man was engaged on the Denver Tramway Company as engineer, in the power house of the electric car line. He was using a wrench to some machinery when accidentally his elbow came into contact with another machine forming a short circuit. The whole electrical force—1000 ampères—used to propel the cars several miles, passed down the forearm and out at the elbow. The electrical discharge was accompanied by a loud report and an intense flash of light. He was knocked down but only lost consciousness for a few seconds. Rivers saw him an hour after the accident, when the skin of arm, hand, face and neck, in fact, all exposed parts, was burnt; effects like those caused by boiling water,—eyelashes and eyebrows burnt off. The ocular conjunctiva looked as if a strong solution of nitrate of silver had been applied, and the corneæ were both ground glass looking, especially in the centres, so much so that the impression was given that they were both destroyed. It was found, however, that only the epithelial layers were affected and ultimately sight recovered, but photophobia remained for some time. Of the many ways that the electric light is liable to be injurious to those employed with it, may be mentioned that of electric welding. This process is one that is becoming very largely used in iron works, and the effects it pro-

[1] March, June, 1894.

duces are so rapidly brought about that it must in the near future find still further employment. Mr. Hewetson last year in the *British Medical Journal* directed attention to a series of cases he had met with in some gentlemen, three in number, who had suffered from the influence of the electric light upon their eyes from having witnessed this process. I have met with men who have suffered also from exposure to the intense light emitted in electric welding. My inquiries at works where the process is used has shown me also that many are to be found who have been affected

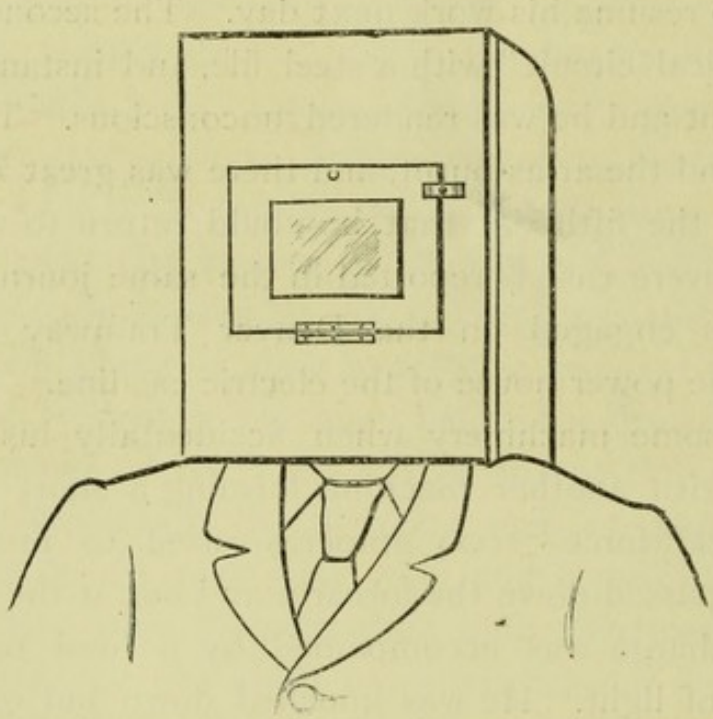

FIG. 3.

by it more or less. On two occasions I have had the opportunity of witnessing the process. In last year's "Medical Annual" I detailed observations I had made, and need only now refer to them briefly. The heat produced is so intense that metal runs at once like solder. So rapidly, indeed, is this effected that without seeing the process it seems incredible. The onlookers in the place with which I am best acquainted use large shields. Glass is in the centre, consisting of alternate layers of blue and red, there being four thicknesses. This is set in a large frame of tin and measures 18 inches by 16 inches—the glass being 8 by 6. I am persuaded that the size of this frame is a matter of importance. From what has reached me as to other works where smaller screens, 9 inches by 9 inches, are used, the men suffer much more than in those which I

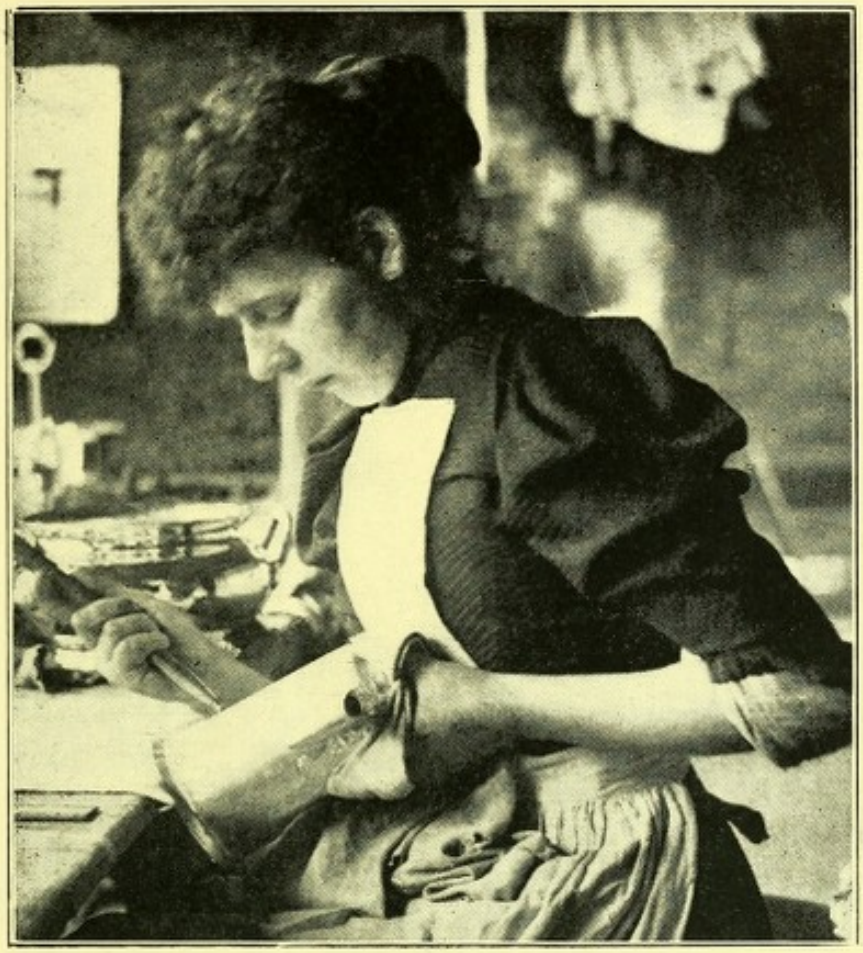

FIG. 1.
Silver Burnishing.

FIG. 2.
Grinder removing foreign body from a fellow-workman's cornea.

especially mention. The man engaged in working the process has a helmet protecting his head and face (fig. 3).[1] This has a window in the middle consisting of glass, six layers alternately red and blue. Any parts of the body which are exposed get burnt, and many men suffer in this way much more severely than if for a day they had been exposed to a burning sun. If the eyes get exposed to the light they feel it at once, but the worst feeling generally does not come on until some hours afterwards, and most men will say that it reaches its acutest stage during the night succeeding the exposure. The eyes feel swollen and as if filled with burning sand. The pain is very severe, or as one man called it "very cruel." There is swelling of lids; so much so that they cannot be opened, and there is lachrymation. All night the pain will last, but the next day the worst will be over, and often by a day more the eyes will be all right in all respects. Terrier and Malakoff have each published very interesting observations, as has also Wildnark. The latter especially appears to have settled the point as to whether in these cases of electric ophthalmia it was the heat or chemical rays that acted so hurtfully. Taking advantage of the different actions of glass and crystal, the former absorbing chemical rays, the latter, or crystal, allowing them to pass, he showed that if a pencil of light before reaching the skin was made to pass through a disc of glass, in the centre of which was a hole filled with a small disc of crystal the redness of the skin was observed only in the central area, a proof of its dependence on the chemical rays. Malakoff pointed that though the light was so intensely dazzling the thermometer was only raised 2° at a metre distant, but it must be borne in mind, however, as a workman mentioned to me recently that the metal acted upon for welding the portion to—for instance, an armour plate—becomes very hot, and standing near it is hardly possible.

Mr. Scott Anderson, a well known electrical engineer, tells me he thinks the screen used by the men should be made of dark ruby non-actinic glass. He is satisfied that it is the chemical rays that are injurious. He has written me the following interesting note:—

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[1] The publishers of the *Medical Annual* have kindly provided me with an electro of this illustration.

"The 'arc' is very rich in blue rays, and these are the rays which do the damage to one's eyes—at least, such is my opinion—therefore the screens should be such as will cut off all the blue; if we use blue glass, then logically we admit blue rays, and this should be avoided. The eye inflammation is caused, as you say, by the chemical effect and not 'heat.' The luminosity of the 'arc' used for welding will be about 8,000 candles, but as far as I am aware there has been no photometric test; but from my knowledge of arc measurements I should assume 8,000 candles. As to the heat, I can give you something more definite: the current used at Messrs. Cammell's for welding would measure 3,000° C. (about 7,000° F)., and with this current I have fused the most refractory ores, such as chromium. It is not an unusual thing to measure 3,000° C. in an electric furnace.

"The thickest ruby (four pieces thick) will transmit a few chemical rays, and I have repeatedly had bad eyes by simply using the screens. I never, unless by accident, get a glance from the naked eye. The description of the pain is quite accurate."

The action of the electric light upon the eye appears confined chiefly, if not entirely, to the conjunctival or corneal surfaces. Fuchs,[1] however, mentions the case of a boy who got a central scotoma from looking at an electric sun placed in the roof, like those resulting from the action of direct sunlight.

I have seen enough of this disorder occasioned by the electric light, to know that it is a distinctly preventable one, and that with the prudent use of the protectors mentioned, the light can be observed with little risk of injury. I have mentioned the thicknesses of the glasses, and though with these the light in electric welding appears quite faint if afterwards with the same glasses one looks into a puddling furnace with a temperature of between 2,000° and 2,500°, the latter appears as a dim and little perceptible light.

Eye Accidents.

The subject of eye accidents as occasioned by occupations, is a large and very important one. I can only treat some of its aspects

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[1] "Causes and Prevention of Blindness," p. 194.

very summarily here. In several of the Sheffield trades the *employés* are liable to get little particles embedded in the cornea. So frequently is this the case that at the different works and factories men are recognised by their fellows for their skill in removing these foreign bodies.

The grinders are specially prone to these minor accidents. Frequently they get several even in the course of a day. It is a common sight in Sheffield streets to witness the removal of these foreign bodies. A man will be seen with his head pressed against a wall (plate, fig. 2), while another stands in front with a pin or blunted lancet, trying to get a "mote" from his mate's cornea. The operator is often very expert, but occasionally one meets with instances where the original injury has been made worse. If the cornea of a grinder be examined with focal illumination, it will frequently be found to be studded with little scars. So that though each of the injuries has been insignificant, by frequent repetition vision has often become deteriorated. The particles embedded may be from the stone, the steel blade or emery, of which some wheels are made for glazing the cutlery. The dry grinder is more exposed to these "motes" than the wet grinder. A grinder at his work sits across his bench or "horse," as he calls it, and presses the blade against the stone. The wet seems in great measure to prevent the particles from flying, yet still a man's face becomes spattered; but he comparatively seldom gets "motes" into his eyes. With the dry grinding the sparks fly freely, and it is only mere chance whether the particles of metal or stone strike the eyes or face, or scatter about the room. The fans—which are compulsory for dry grinding—exert great influence in drawing away the particles. Some time ago I spent a good deal of time in investigating the processes spoken of with a view to arriving at methods to avoid the occurrence of the frequently recurring eye injuries. It was clear that they were in great measure preventable if the grinder would only wear protecting glasses at his work. Large spectacles of plain glass are made for the purpose, but the workman is careless and indifferent. The wet grinder would complain that the glasses would get covered at his work, and so act as a hindrance to proper sight. Men who for various reasons have

required spectacles, have, however, assured me that they are a great protection. The distance a man is from the stone is a matter of considerable importance, as the further away he is the less becomes the chance of his being struck, and therefore it is of moment to have refraction errors corrected. Besides the plain glass spectacles already mentioned, others are made of mica or talc, or either of these, or glass, with gauze sides.

It is interesting to note that foreign bodies strike the eye in the great majority of cases at its middle or above it; very few below. Thus, of fifty-eight mostly serious injuries with steel chippings, forty-two hit the eye at its middle or above, only seven below, and the situation in nine was not mentioned in the reports. It would appear that some sort of shade could be devised, perhaps of mica, which would be of some preventive value in not only these minor accidents, but in the more serious ones to be presently related. Fuchs has suggested that the use of spectacles should among workmen be made compulsory, and Magnus is of opinion that one-eyed men should not be employed in occupations dangerous to eyesight.

Ivory cutting[1] is another industry largely carried on in Sheffield. The circular saw is used and freely scatters about splinters which are liable to become embedded in the cornea. A simple, preventive plan I saw at some works a few years ago, was the suspension of a small screen, made in this instance of simple brown paper, over the saw. This effectively prevented the return of the particles towards the workmen.

The more serious injuries happen to the workers in metals. Those engaged in chipping, punching, chiselling, rivetting, fitting, and the various other work, both in steel and iron, suffer from accidents less frequently, perhaps, than the grinder, but of a more serious nature. In punching or rivetting, as in other work no doubt, it must be recollected that there are no less than four surfaces from which a fragment may fly off—the head of the hammer, the two ends of the punch, and the steel itself. These splinters

[1] Stone-cutters also are liable to get particles embedded in the cornea. The chipping of stones in the streets without the protection of a hoarding is fraught with danger to passers by.

coming off with great velocity penetrate often an eyelid and lodge in the interior of the globe, or are found sticking in the cornea sclerotic, anterior chamber, or lens. It may be stated, as showing how these injuries bear upon occupations, that of the large number about 150 fragments, that I have removed with the electro-magnet from different parts of the eye, not one has been in a female.

The remarks made before as to protective measures apply with greater force to this heavier kind of work than it did to grinding.

Another class of serious accidents are those from molten metal. In some instances it has been slag that has done the damage, or hot coal, coke, or cinder. The destruction of cornea, sometimes complete, with sacrifice of eyeball, or, in other cases, with more or less extensive resulting symblepharon, bring these accidents among the very serious cases. It has been suggested that the workman's face should be protected with a fine net-work.

Colliers are also exposed to eye injuries. From figures supplied to me by Mr. Watson, Secretary of the West Riding Permanent Relief Fund Friendly Society, I find out of a total of 34,795 non-fatal accidents, no less than 1,778 were to the eye. The parts of the body in excess, as far as numbers go, being hands, 9,951 ; legs, 4,595 ; feet, 5,048 ; back, 4,816 ; arms and body were a little in excess of the numbers given for eye injuries. This gives to eye accidents a large proportion. They are mostly, I think, abrasions of the cornea, caused generally by pieces of coal, but sometimes by particles from the pick or wedge used for getting the coal down. There is a greater tendency, I think, for these than is the case usually with abrasions, to run into hypopyon ulcers.

In my experience the loss of an eye as a consequence of a man's occupation is, comparatively speaking, so frequent, that I should like to see a system of insurance against accident more fully adopted by workmen. The Employers' Liability Act only covers cases which have arisen through any carelessness on the part of the employer. The cases I allude to do not come under this class at all, and are, generally speaking, accidents pure and simple. Many of the workmen's clubs provide, by the payment of

a stated sum, in some cases £100, to a member who has been permanently incapacitated from following his usual employment. This, of course, does not meet every case in which one eye has been seriously damaged, or even altogether lost. Insurance should cover the loss of an eye whether the man pursued his occupation again or not.