and other senses have been left "intact." It may be said that the apparently great preponderance of the colour-defect over that of the other senses is highly suggestive, or only explicable on the presumption that there are special centres; but that, owing to their close proximity, it is hardly possible for one to be injured without the others. While I admit the plausibility of that argument, it in no way alters my position in respect to the assertions made by the writers whom I have quoted, nor does it diminish the necessity for careful inquiry, especially as to whether the preponderance is real or apparent.

I shall not in conclusion be so illogical as to say that there are no special centres, for, in connection with the colour-sense in particular, I know that there are other recorded cases, congenital and acquired, which lend some probability to the theory of a special centre for colour. On other grounds I am not disposed to favour that theory, but it is beside my present purpose to discuss these. I have endeavoured to show that the imperfect investigation of one group of cases has led to deductions unwarranted by the facts before us, and that a fresh inquiry is necessary. I feel confident that cases of partial hemianopsia are far more frequent than is usually supposed, and not less certain that their more careful investigation is calculated to throw much light on the nature, relations, and localisation of the visual senses.

Mr. HEWETSON said that he himself had hemianopsia at times. The form from which he suffered was that suddenly in the right half of both retinae he saw an appearance of an electrical discharge, which completely blotted out from that half of the field of vision all objects whatsoever; this was followed by severe pain on the left parietal region.—Dr. BENSON asked Mr. Hewetson if such appearances were not indicative of possible cerebral trouble?—Dr. KARL GROSSMANN thought that such cases were more like a scintillating scotoma. He had suffered from such attacks, and with him they were always followed by sickness and headache.—Dr. MACKAY thought such cases functional; they should, however, receive as careful investigation as those due to gross lesion.

GENERAL NEUROSES HAVING AN OPHTHALMIC ORIGIN.

Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association held in Glasgow, August, 1888.

By H. BENDELACK HEWETSON, M.R.C.S.,

Ophthalmic and Aural Surgeon, Leeds General Infirmary; late House-Surgeon Leeds Public Dispensary.

It is now some years since I first observed symptoms, many and varied, occurring in neurotic persons who were also the subjects of uncorrected optically defective sight. In investigating more particularly the relationship between the various optic errors and sick headache, or simple headache, I was occasionally startled by the apparent direct relationship between the long uncorrected disorder (with all its immediate train of nervous disorders) and general conditions of ill-health which seemed to be the direct outcome of a thus already demoralised nervous system. It is now well established that many cases of migraine or sick headache are directly attributable to the reflected irritation of the brain (and thence the gastric functions and heart's action) from some uncorrected optical state, chiefly on the side of hypermetropia, and always in a neurotic subject. It is also well proven that many of these cases are entirely relieved from their periodic attacks by the use of properly selected glasses; or, having passed an age when the activity of the accommodation ceases more or less, and the eye becomes presbyopic, the severity of the headache or migraine becomes greatly modified. It is further well known that a patient, the subject of hypermetropia, is liable, according to varying circumstances, such as extent of defect and use of the eyes, to more or less constant "head pains," not necessarily associated with very obviously defective vision, or aching eyes, but always peculiar in their position and character, and aggravated by close application of the sight. Although I have very fully published my observations some time ago on the relations between sick headache and optical defects, and utilised what was previously discovered as to the relation between headache (broadly defined as such) and hypermetropia, I had not felt my footing sufficiently to enable me to bring forward that which is now my desire to show, namely, that the neuroses growing and

arising from congenital optical error are more subtle in their nature, more varied in their distribution, and more demoralising to the right evolution of the nervous system than I was at first led to suppose.

I particularly wish it to be clearly understood I do not think all sick headaches come from an optic defect, for it is well known that decayed teeth or central irritation of the ear or nose are frequently causes as well as other more general neuroses. But I have patients who have been martyrs to sick headache; who are also astigmatic, and in whom a complete cure has been effected by the use of cylindrical lenses, showing that when sick headache and its accompanying dyspepsia is due to reflected irritation in a neurotic subject, from the eyes to the stomach, complete immunity from attacks of this kind may be obtained by glasses; and further, as I have observed, a very marked improvement in general cheerfulness and health. I may here remark that many persons who suffer from sick headache are astigmatic in an abnormal though slight degree, and it is only by straining their eyes by looking long and hard at some fine object, or exercising such feats of sight-seeing as "doing" the National Gallery and the Academy in one day, or severe microscopical study, reading, and the like, which will irritate the brain sufficiently to cause an attack. One patient says he always suffers from sick headache after watching a play; another actually brings on headache, vertigo, and vomiting by doing fine sewing; a third has sick headache only when reading for an examination; a fourth when she was at school, not since; but all proving to be ametropic, and completely cured by the systematic use of glasses constantly worn.

The most common forms of headache associated with that optical error known as hypermetropia are—either simply a heaviness or pain over the brows (this may or may not be combined with general headache), or very frequently a tender place on the top of the head, making it particularly painful to dress the hair—such a pain as occurs after a lock of hair has been "slept on the wrong way," in common parlance; there is also frequently pain at the back of the head. All these pains may be present together, or they may exist singly, but they all occasionally occur in conjunction with severe neuralgia at the back of the neck. This I have frequently noticed, and where it occurred, whether associated with the other head pains or not, it, as well as they, soon disappeared with the systematic use of accurately adapted correcting glasses. This symptom of pain at the back of the head and neck is not one which has long been associated with optical defect, but I have now seen a sufficient number of cases to show without doubt that such may be safely regarded as one of the symptoms of (frequently latent) optical error, perfectly remediable by the use of glasses, and, when such, by glasses only.

Dr. LAUDER BRUNTON wrote me that he has seen several cases of neuralgia of the back of the neck cured by glasses. It would not appear to need demonstration that with symptoms so severe and depressing to the general nervous system as are the various forms of headache—vertigo, which is associated with astigmatism; vomiting; possibly, as I have noted, palpitation, or neurotic dyspepsia between the attacks of migraine—other conditions should arise as a sequel in many constitutions. One which I particularly wish to draw attention to is insomnia. This particular symptom I observed in many cases the subjects of astigmatism. In one instance in particular, where the eyes had given much trouble during the examination period of an Oxford man's life, it was particularly remarked to me that after the astigmatic trouble was corrected by suitable glasses, with an equal amount of work, the insomnia disappeared, and the whole physical and nervous state of the gentleman improved greatly. One object of my paper will be to show what an important factor these optical errors are in, as it were, moulding during childhood and early life the nervous and constitutional state of the individual. As a proof of this I will quote two cases, both in ladies of education and refinement, which seem to give us some sort of clue to the possible effects on the constitution of persons who conscientiously struggle through a severe scholastic career with important optical errors entirely uncorrected.

The first case was that of a lady, aged 22, whom, some few years ago, I found to be the subject of compound hypermetropic astigmatism. Her health was not good, but she particularly complained of headache and general feelings of *malaise*. I corrected the astigmatism after very patient testing, since here great nervousness made it a very trying process for myself as well as the patient. There were other symptoms, such as would be ordinarily covered by the convenient but too easily accessible

term hysteria, which showed itself in subjective pains at the back of the neck, tenderness of the spine, and frequently of the skin generally. There was no apparent lesion in any important organ, and she appeared to be the possessor of a greatly demoralised nervous system, which was easily overwrought, no matter what amount of moral pluck appeared to be put forth to resist an attack. After wearing the glasses for three years constantly her whole being seemed to change, so great was the relief. All headaches and difficulty in obtaining sleep disappeared, the appetite improved, and she became more companionable at home; but there was evidently, with all this improvement, a disordered state of the nervous system not yet removed; the tenderness of the spine remained more or less, and the health was still subject to variable and unaccountable fluctuations. I made up my mind that though the head pains had been so far cured by the use of glasses, yet the long struggle in pain and toil of educational work had so far damaged the peripheral nerves that some other means of cure must be attempted.

I could multiply instances in which varying degrees of this kind of nervous demoralisation occurred; but generally there is either nerve-resisting power or neurotic recuperation sufficient to enable the individual to recover if the sight be fully corrected. I am perfectly convinced that until the sight had been corrected all such treatment as I have indicated would be useless. If carefully looked into, this appears to me to suggest some very important conclusions in relation to the community at large. I see children driven to do their work although suffering from defective sight, constant headache, and restless nights, which result in great exhaustion of the nervous system, disturbance of the various functions of the body, and a disinclination to innocent and beneficial child-play, all of which is with perfect ease set to right by a correction of the optical defect which causes it. But supposing that a naturally nervous subject grows up under these conditions, the right evolution of some of the nervous system is undoubtedly endowed with morbid action, as well as the formation of the character disturbed. The causes are evident: the consequences, I believe, will be found in some of the neuroses which I have endeavoured thus imperfectly to describe.

There are conditions and pains associated with these *head pains*, and commonly attributed by the patient to disease of the eyes, since the eyes are frequently affected. I refer to the pain in and around, due to carious teeth, and these pains are frequently coincident with other—if I may so call them—ophthalmic neuroses. The existence of apparently quiescent carious lower molars causes invariably a point of pain in the temporal region; but the upper molars, when carious—one or all it may be—cause pain above the outer part of the eyebrow of the same side. Decay of the incisors and canines or bicuspsids, mostly quiescent in the mouth, commonly causes pain either in the eye or about the inner side of the orbit above the diseased teeth. The extraction of the offending teeth invariably removes the local pain. These conditions were so frequently referred to diseases of the eye, that it became necessary to localise pains in the head so as to correctly diagnose their origin, and hence reach the cause.

Mr. CARTER gave further details of a case mentioned by Mr. Hewetson, and of other cases in his practice.—Mr. BICKERTON spoke of epileptic attacks as being determined by ametropia and want of convergence, and cured by the use of glasses.¹—Dr. REID asked if those were cases of high degree. He generally supposed that the cases which gave most trouble were those of moderate degree, where the ciliary muscle made an attempt to overcome the ametropia.—Mr. HEWETSON replied that the large majority of cases giving trouble were in those in whom there was a small optical error; in the higher degrees the accommodation “throws up the sponge,” but in the lesser degrees there is a constant attempt at ciliary correction.

¹ Mr. Bickerton, since the reading of this paper, has seen a case of epilepsy occurring in a lady of 30, whose eyes were naturally highly hypermetropic, but have become the subjects of conical cornea. She, of her own accord, avoided reading, etc., as being “sure to bring on an attack.”

UNDER the new Army Bill, to be laid before the Parliaments of Austria-Hungary, medical students will be called upon to serve six months in the ranks, and six years in army hospitals or field ambulances.

MEDICAL MAGISTRATE.—Dr. A. H. Kelly, Parsonstown, late Staff Surgeon R.N., has been appointed to the Commission of the Peace for the King's County.

SAILORS AND THEIR EYESIGHT, INCLUDING COLOUR-BLINDNESS.

Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, held in Glasgow, August, 1888.

By T. H. BICKERTON,

Oculist to the Liverpool Royal Infirmary.

IN the discussion following a paper on “Colour-Blindness in the Mercantile Marine,” read last year before this Section at Dublin, Mr. Nettleship made a remark to the effect that, in the absence of proof of accidents having occurred through the defective eyesight of sailors, but little attention would be paid to the subject. He suggested, and his suggestion was endorsed by the BRITISH MEDICAL JOURNAL, that evidence should be collected of accidents which have actually happened from mistakes as to the colour of signals, or from other defective eyesight, believing that such evidence would form a real fulcrum on which to work.

Acting on that suggestion, I have during the past year been on the look out for facts which in any way bore upon this point; but the difficulties in the way of obtaining evidence of this nature are great.

In the first place, the question of eyesight can scarcely yet be said to enter into the inquiries held as to the causes of shipping accidents. Secondly, if perchance defective vision has appeared as a possible cause, it has been passed unnoticed by the press; and, finally, it is to the interest of those employing sailors with defective eyesight to be silent about the deficiency in case of accident.

It is not my intention in this paper to discuss the regulations, or rather the want of regulations, which allow colour-blind and defective-sighted men to enter the sea service.

In the BRITISH MEDICAL JOURNAL will be found ample proof of the thoroughness with which the general aspect of this subject has been treated, and, should further corroboration be required, it is to be found in the admirable paper, by Dr. Brailey, “On the Tests of Vision best adapted for Service at Sea,” in the “Cantor Lectures on Colour-Blindness,” by Mr. Brudenell Carter; and in a paper “On Colour-Blindness with relation to Railway and Sea Signals,” written by our Vice-President, Dr. Wolfe, as far back as 1879; and if the opinions of these and other experts have had but little or rather no effect upon those who should be responsible for the safety of the sea-travelling public, no additional general statements are likely to be of benefit. While we may regret the state of affairs which require for what is so obviously necessary such proofs as suggested by Mr. Nettleship, we shall, I think, be best furthering our cause by acting on that suggestion. Therefore, my remarks to-day will consist mainly in the relation of cases of accident in which the colour-sense has been called in question; of cases of accident in which the evidence has shown that it should have been called in question; of a case where, although a mistake as to the meaning of a light was made, the good vision and prompt action on the part of an officer was the means of preventing a serious calamity; and of cases of pilots with defective eyesight.

The first case is one known to most, if not to all, present; but in a paper of this description it is convenient to mention it. It is to be found on page 6 of the Annual Report of the Supervising Inspector-General of Steam Vessels to the Secretary of the Treasury, dated Washington, 1880,¹ and reads as follows: “On the night of July 5th, 1875, there was a collision near Norfolk, Va., between the steam tug *Lumberman* and the steamship *Isaac Bell*, the former vessel bound to, and the latter from, Norfolk. The accident occurred at about 9 P.M. on an ordinarily clear night, under circumstances which until recently seemed more or less mysterious. The master of the steamer and all his officers made oath that at the time signals were made to the tug, the latter was from one to two points on the steamer's starboard bow, and consequently the steamer's green light only was visible to the approaching vessel. Yet the master of the tug, whose statement was unsupported by any other testimony, asserted that the steamer's red light was exhibited, and he signalled accordingly. The discrepancy in the statements was so great, that many persons uncharitably charged the master of the tug with being intoxicated, although no evidence was ever offered in support of the charge. By this accident, ten persons lost their lives. Upon a visual examination of this officer under the rules during the past summer,

¹ For this information I have to thank Dr. Joy Jeffries, of Boston.