could be easily recalled to reason and comprehension of his condition and the falsity of his delusions. His appetite is voracious. Feels hungry at every moment. Pulse 64. Tongue furred. Bowels regular. Kneejerks normal. Very considerable muscular tremor. Has terrible dreams at night that exhaust him. His father states that he remarked an unusual hilarity in his son for a week or so prior to the nervous trouble breaking out, and also a weakness of his memory. Would laugh inordinately in the house without apparent reason. All of the men working in this part of the factory were addicted to the same hilarious conduct.

Such was the history given us on admission of the patient.

The following are extracts from the two medical certificates: "He has a delusion that he is suffering from consumption, and is in constant fear of immediate death by suffocation. In his efforts to secure relief he has threatened to drown himself and has attempted to cut his throat. Is afraid to be left alone."

The duration seems to have been about four weeks.

May 6th. Depressed, unhappy, hypochondriacal. Goes about wringing his hands.

May 9th. Up to to-day rather sleepless, very hypochondriacal, sometimes in a hysterical condition. Tremor marked. Feels as if he were going to become insane, he says; cannot get his breath and feels a constriction about the lungs.

May 13th. Feels a "fever rushing to his head" and as if he were going into a delirium. Has no headache, but a numbness as if he had no head at all, and a feeling in his chest as if he could not catch his breath. His lungs are on examination perfectly normal.

From this time on his condition varied. At times he had delusions that his tongue, lips and lungs were gone, and had a variety of paræsthesiæ affecting all of his viscera, but generally his head. Occasionally he seemed feeble-minded. The sense of suffocation came to him often. By February, 1888, he had improved physically very much, but the mental condition remained about the same. May 10, 1888, he had recovered both mentally and physically and was discharged. He had been an inmate of the asylum one year and five days. I have seen him since, in New York, and he has remained well.

CASE III. M. B., male, age thirty-one, married, a Hebrew, born in Austria, admitted August 9, 1887. Worker in the same department of the rubber factory as Cases I and II. Little could be learned about him on admission except that he had been in a very maniacal condition for several days and had taken little or no food. Is very incoherent. Pulse weak and rapid. The medical certificates are to the following effect:

"The patient has acute mania, with periods of great excitement when he is both suicidal and homicidal."

"I have known M. B. for two years past as a sober man. On the nights of the 6th and 7th of August, he was in a condition of great mental excitement, disturbing the neighborhood by loud noises and violent praying."

He remained in a typical maniacal condition till about the middle of August, showing great motor excitement: being noisy, violent, destructive of clothing, filthy in his habits, perfectly incoherent, sleepless except with drugs, and resisting care. At one time dangerous symptoms of exhaustion were present, and

it was feared that he would die. After mid-August he made rapid progress both mentally and physically and was discharged recovered September 30, 1887, having been in the asylum less than two months.

In none of these cases was there any hereditary taint. All were young, healthy and strong men, working in the same department of a rubber factory where they were exposed to the fumes of the mixture of CS_2 and S_2Cl_2 commonly used in the preparation of rubber goods. In all it was the first attack. The first and third cases were in such a maniacal condition that the subjective and somatic toxic symptoms could not be studied. The second case illustrates, however, very well some of the peculiarities of bisulphide-of-carbon poisoning: the headaches, the electric paræsthesiæ throughout his body, the sensation of numbness in his tongue and head, the *globus hystericus*, the voracious appetite, the hilarious feeling of the early intoxication, the terrible dreams by night, and the general muscular tremor — all of them pointed out by many authors as characteristic of this species of disorder.

In none of the cases did we discover any neuritis.

I have delayed publishing these cases for some years, thinking that I might hear of other similar ones, or that I might acquire more information from the owners of the factory or from doctors in attendance upon their employees, but it is astonishing what a large amount of ignorance and secretiveness develops among the authorities connected with any factory, when questions arise as to the unhealthful conditions under which the operatives pursue their vocation.

OCULAR HEADACHES: THEIR CAUSE, CHARACTERISTICS AND TREATMENT.¹

BY MYLES STANDISH, M.D.,

Ophthalmic Surgeon, Carney Hospital; Assistant Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary; Instructor in Ophthalmology, Boston Polyclinic.

OCULAR headaches come from ocular strain, and ocular strain comes from extraordinary and unnecessary effort being required to enable the eyes to perform their ordinary duties. A normal eye is of such a length antero-posteriorly that parallel rays of light come to a focus upon the retina without any muscular effort, and that diverging rays (those originating within a few feet) can be brought to a focus upon the retina in the same place by increasing the convexity of the lens, that is, by muscular effort.

Now, if an eye is too short antero-posteriorly (hypermetropia), to allow parallel rays of light to come to a focus upon the retina, such an eye would not see in the distance distinctly as long as it used the same methods as a normal eye; but the possessor of such an eye early finds that by use of the muscular apparatus intended to enable the eye to focus for near he can make the lens more convex and thus bring the rays to a focus upon his retina, and so see distinctly in the distance. This he habitually does, and when called upon to look at near objects, adds to the effort which he maintains all the time the amount of effort which a normal eye has to use to see such near object; of course, such an effort is a burden.

If, on the other hand, an eye is too long antero-posteriorly (myopia), the possessor of such an eye cannot use his muscular apparatus to correct the error,

¹ Read before the Section for Clinical Medicine, Pathology and Hygiene, of the Suffolk District Medical Society, May 18, 1892.

and the only method which will enable him to see distinctly, without artificial aid, is to bring the object nearer to his eyes. It is apparent, therefore, that simple hypermetropia may easily be the cause of ocular strain, and simple myopia cannot, and that a person who cannot see well in the distance may not have any ocular strain whatever.

If, again, the different axes of the eye have different focal distances (astigmatism), so that the curvature of the lens must be muscularly maintained greater in some axes than in others, in order to see distinctly either for distance or near, we have another burden laid upon the muscular apparatus, which is excessively fatiguing if constantly maintained.

That there should come great strain from the use of the eyes is not strange. We have two eyes, which may be unlike, and both of which must see equally distinctly, and look at the same object at the same time. Naturally the great part of ocular strain comes from near work, and consequently a hypermetrope is the one who commonly suffers, and a hypermetrope with different amounts of hypermetropia in the two eyes still more commonly suffers; and if to this is added an astigmatism in either or both eyes, we have the most frequent form of ocular condition which produces headache. It is natural that a myope who places his book in his far point, and reads without exercising his accommodation should be, as a rule, free from ocular headache; and this in practice is found to be the fact.

Ocular headaches may come also from insufficiencies of the ocular muscles; for, for every given amount of accommodation the eyes must converge a proper amount, and if there is a discrepancy between the amount of exertion required to accommodate to a given point and the amount of converge to a given point, ocular strain is the result. Where the accommodation is normal and the correction of the refraction does not do away with the strain, the trouble must lie in the muscles, and they should never be overlooked in such a case.

While it is perfectly true that a large number of headaches are due to errors of refraction; it is also perfectly true that a man may have a very considerable error of refraction and have no headache therefrom. This being the case, there must be something besides the error of refraction necessary to produce an ocular headache, and that something is a neurotic predisposition.

A simile that I have often used to illustrate the method of ocular disturbance is this: Everybody has a certain amount of nervous force which he holds in reserve to resist any strain; and if this nervous resistance to irritation is frittered away by some means at every moment of one's waking hours, when the time comes to fall back upon that reserve supply, it is not there. It is as if the contents of the cistern of our reserve nervous supply were continually being dribbled away, and when the time of need comes it is found empty. In our patient with a neurotic predisposition, the cistern is at its best a very small one.

To understand the characteristics of an ocular headache, let us follow the life-history of the eyes. A child at birth has no accommodative power, in all probability, and only acquires full accommodative power at about three years of age, and it is then in hypermetropes that the large amount of accommodation necessary to see near objects produces an overconvergence in children, and squint is seen for the first time.

The large majority of cases of convergent strabismus originate at the time of life at which accommodation is first used. If there is a good deal of hypermetropia, so that it is difficult for the patient at any time to see near objects, usually the headaches will appear in childhood, and will be present during school-term time and absent during long vacation. In fact, nearly all repeated headaches of childhood are ocular. Curiously enough, we begin to get old, as far as our eyes are concerned, at about fourteen years of age. From that time on our near point recedes until some time between forty-five to sixty years the power of accommodation is practically lost. During this period there comes a time when the recession of the near point has gone beyond a comfortable distance in which to hold the book, and the strain to see produces headache, even if the eyes are normal. This generally occurs at forty-five years of age, but if the patient has a small amount of hypermetropia, which he has earlier been able to correct without difficulty, the time will come when he cannot correct it, and at that time he will have ocular headaches, although it may be thirty to thirty-five or forty years of age.

Another combination of circumstances which is very likely to precipitate ocular headaches in the subject before free from them is when a man takes up an occupation which requires much more exact use of the eyes than that which he has pursued heretofore. Such a patient will be subject to headaches from so small an amount of astigmatism that previously he had been unaware of any trouble in his eyes, and had never had headache.

Again, a patient with a small amount of astigmatism or hypermetropia, who has always corrected it without difficulty, may find upon recovering from some prostrating illness or mental shock or worry that headaches are frequent. This simply means that the physical condition has been so reduced that the muscular labor of correcting the error, heretofore easily borne, is now a burden. Proper glasses will stop such a headache; and when the person has recovered his wonted vigor, it is very probable that he can dispense with glasses entirely until such other time as illness, age, or more continuous application reproduces his symptoms, and he is obliged to resume his glasses.

The characteristics of an ocular headache are that they follow near work or come on during near work. Perhaps the most common form is a headache in the morning after long-continued use of the eyes in the evening, although there had been no headache while the eyes were actually employed. By headache in the morning, I mean a headache upon awakening; I do not mean a headache that wakes the patient. My experience is that a headache sufficiently intense to wake the patient in the night or in the early morning is not ocular, and is generally uræmic. Ocular headaches almost always follow railroad journeys, visits to the theatre, walking in crowded streets, looking intently at the minister in a darkened church, visiting picture-galleries, or any other use of the eyes which requires unwonted exactness of vision. Such a headache is first of all frontal, very often temporal, and with or without pain in the eyes. The next most common place for such headaches is in the occipital region. A headache that is frontal and occipital is almost always ocular. A headache that is confined to the vertex or to the parietal regions of the head is almost never ocular.

Many cases of migraine are ocular in origin, and,

when so, have in my opinion distinctly ocular phenomena. Such patients will complain that when reading they were suddenly unable to see but one-half the object, or but one-half of a letter at a time, that this condition continued from ten to fifteen minutes, and was followed by a violent hemicrania, which lasted for a number of hours. Such patients will complain that when a headache is coming on the rows of books upon a book-shelf would apparently open and shut like an accordion, or that round objects suddenly whirled. When any or all of these symptoms are prodromic symptoms of migraine, the eyes should be the first point of investigation.

The treatment of ocular headaches is, of course, the correction of the strain, and this in the vast majority of cases means proper glasses; and the selection of these glasses is a matter requiring great care and skill, for a correction that enables the patient to see perfectly well will not relieve the headache unless it also absolutely corrects the error of refraction, and the difficulties of examination in these cases are many. Spasmodic conditions of the ciliary muscles are common, absolutely hiding the true error and in many cases setting up an apparent error of an opposite kind. Therefore, such corrections for headaches and nervous phenomena can only be made under a mydriatic. If, after putting on proper glasses, after a proper examination, a headache which is apparently ocular still continues, it will generally be found to be due to an insufficiency in the balance of the ocular muscles. The vast majority of headaches are done away with by properly correcting the error of refraction, but a few cases remain in which operation upon the muscles is absolutely necessary for relief of the nervous phenomena. The correction of muscular insufficiencies sometimes produces results that are almost marvellous, and the amount of relief is in no way comparable with the amount of the insufficiency as measured by the prism tests.

Another point upon which I wish to speak is this: the fact that a patient sees with rather more than the usual amount of accuracy in distance is not a proof that the eyes may not be the cause of the headaches. In fact, it seems to me that a person with a small amount of astigmatism or a small amount of hypermetropia which he can easily correct, and who has rather extraordinary acuity of vision, is the very person who is most likely to suffer from ocular strain. Such a person can see many things which other people do not, and with an accuracy which other people do not attempt, and in so doing imposes upon himself a burden which other people do not carry. Thus, too great acuity of vision, when associated with a small error of refraction, may be a positive misfortune.

SIR JOSEPH LISTER, having reached the age of sixty-five, the age-limit by the regulations of King's College, Edinburgh, has retired from the clinical lectureship in surgery.

CHARAKA SAMHITA. — This is the title of the most ancient and famous work on Hindu medicine which is known to exist. It is also the most comprehensive Sanscrit treatise on disease. A translation of this work has undertaken by Kaviraj Avinash Chandra Kaviratna, of Calcutta, and forms a valuable contribution to medical history.

A HOUSEHOLD EPIDEMIC OF PNEUMONIA SUGGESTING CONTAGION.

BY GEORGE G. SEARS, M.D.

THE appearance of pneumonia in epidemic form, either confined within the limits of a single household or extending over a considerable area, is as well known as any fact in the history of the disease and one of the most satisfactory proofs of its infectious character, as the most natural explanation of such outbreaks is the exposure of the patients to one common cause. Instances, however, are by no means unusual where no such cause can be discovered, and the observers have not hesitated to ascribe the spread of the disease to personal contact, to contagion in the usual acceptance of the term. Such an explanation of certain cases is accepted by the Committee for Collective Investigation of the British Medical Association, who quote several instances. Flindt,¹ who has had exceptional opportunities for studying the disease in one of the small Danish Islands, says that in more than seventy per cent. of all cases where pneumonia appeared in a household previously spared, it was proved that the person first attacked, either immediately or a short time before, had been in more or less intimate relations with a pneumonia patient or had visited his house, and had then time and again acted as a focus for its further dissemination. Netter, who has collected and analyzed a number of reports of these epidemics, is convinced that the disease can be communicated either immediately, by direct contagion, or through the medium of some article of furniture, wearing apparel, etc., and the same opinion is held by many others.

In the following cases the disease seems to have been directly transmitted from one patient to the other. The family consisted of the father, mother and six children. It had occupied the same house for the past twenty-seven years, and during that time had had but one serious case of illness, a pneumonia from which the father suffered eleven years before. The house was not overcrowded, was kept decently clean, and its sanitary condition was good, the drainage having been recently overhauled. On the second or third of December, 1888, the father began to complain of slight cough and pain in the left side, but was not confined to the bed till two or three days later. On the 8th of the month he was removed to the hospital with consolidation of the left lower lobe, and was discharged well on the 22d. During the first few days of his illness he was placed in charge of the youngest child, a girl of three, who spent most of the time on the couch on which he was lying. On the 22d she developed a pneumonia of the left lower lobe. Convalescence was slow, and was delayed by a purulent otitis media. On the 1st of January, 1889, the oldest daughter, seventeen years of age, who had acted throughout as nurse of the latter case, also came down with the disease, the left lower lobe being again involved. Defervescence occurred on the 7th, as in the other cases, by crisis. The history of the three cases was very similar. In all the disease developed rather insidiously without initial chill, and the earliest symptoms were chiefly referable to the digestive tract, consisting of nausea and vomiting, accompanied in the last case by considerable diarrhoea. It was only after the lapse of a day or two that cough, pain in the side,

¹ Transactions of the International Medical Congress, 1884.