skill than the gold filling, and there will be other systems, as well as the system of orthodontia, in which men have been able to go and take this course for six weeks or several months and come back very well able to cope with irregularities, and so it will be. It will be through systems of that kind, which will make possible the mechanical side of dentistry. That will take care of itself. Even though dentists should lose a little, in a mechanical direction, they can afford to do it. They can afford to do it for the sake of what will be gained through research in the true medical direction. Dr. Schamberg feels confident of that, for the reason that dentistry requires a course of study, instead of the old method of spending years in the office of a preceptor.

HEADACHE AS A SYMPTOM OF LOCAL DISORDERS.*

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"Nothing could be less scientific than the establishment of a hierarchy among medical problems based on the relative severity of symptoms. Prognosis apart, there can be no division of diseases into major and minor. It is the outcome of ignorance to relegate any symptom to a secondary place, for we forget that difficult questions are often elucidated by apparently trivial data." The sentences we have just quoted are from the introductory paragraphs of Professor Brissaud's preface to Meige's and Feindel's interesting work of "Tics and Their Treatment." (English translation.) They express what we have often thought in regard to the commonplace subject of headaches.

We propose in this paper to consider only headaches in which the pain in the head is the sole, or at least principal, complaint of the patient. It is based on an analysis of over 1,700 cases collected during the past fifteen years which have been personally seen and studied by at least one of us.

In studying cases of chronic or recurrent headaches it is always our first endeavor to obtain the most precise description possible of the location of the pain, its character, time of occurrence, duration, spots of tenderness in head, and the immediate cause of the individual attacks, where any have been observed. We have then proceeded to make the most complete examination of the patient's physical condition and past and present history that time and opportunity permitted. The most important points in such an examination are:

1. The family and personal history as to evidence of neurotic tendencies, worries arising from business and family troubles, or a nerve-tiring occupation.

2. The habits as to care of the bowels, diet, the state of the digestion, the menstrual function, the use of tea, coffee, tobacco and alcohol, bad air, the practice of sexual excess or masturbation.

3. A physical examination as to the reflexes, as far as they indicate an irritable weakness of the nervous system, the heart, the state of the blood vessels and pelvic organs, the character of the urine and the blood, the eyes, nose, teeth and ears.

The principal conclusions at which we have arrived from this study are: 1. That a neuropathic diathesis is an essential condition of the occurrence of almost all chronic headaches of the kind we are discussing; the

only exceptions to this rule occurring in patients where the other causes we are about to consider exist in unusual severity. 2. That the great majority of cases have, in addition to a neuropathic diathesis, some source of local irritation to the nervous system which often manifests itself in no other subjective symptom. 3. That a minority of cases, though still a considerable number, are suffering from anemia, or a toxemic condition, which, as before, occurs in a person of neuropathic diathesis, and may manifest itself in no other subjective symptom of importance. 4. That the more marked the neuropathic tendencies, the less need be the degree of local irritation, or toxemia, and vice versa. 5. That in some cases, often the most severe ones, a local irritation of the nervous system is reinforced by a toxemia. And 6. That there are a considerable number of what we may call composite headaches in which two or more local irritations combine to intensify the sufferer's neuropathic tendencies and to cause headache.

LOCATION.

We have found the location of the headache the most useful single symptom in pointing out its cause. The classification of locations which we have adopted is: 1, frontal; 2, temporal; 3, occipital; 4, vertical; 5, parietal; 6, circular, in which the pain is described as resembling a band surrounding the head; and lastly, 7, general headaches. It is also very common to find combinations of one or more of the first five locations which we have enumerated. For example, the vertical-occipital headache, due to retroversion of the uterus, with endometritis. These when complicated are often mistaken for true general headaches. Moreover, any headache when very severe tends to become widely diffused. Its true type in such a case is often indicated by the region of most marked tenderness to pressure, or still more clearly by the location in which the pain began.

None of the indications to be drawn from the location of the pain are absolutely invariable, as will be seen by a study of the tabulated cases. All that we would insist on in regard to the location is that it is the most important guide in the patient's description of the probable cause. There are few cases, however, of any severity in which the whole of the examination which we have mentioned should not be made. Much of the doubt and uncertainty as to the causation will be found to be due to the incompleteness of the general examination of the patient. The more one persists in looking for causes in the eye, nose and pelvic organs the more frequently will he observe cases in which the typical headache of derangements of these organs will be found the only subjective symptoms of disease. On the other hand, if our interest in the local irritations blinds us to the important fact that they rarely cause headaches, except in the neuropathic individuals, or renders us forgetful of the possibilities of toxemia or anemia, our results will not be perfectly satisfactory.

Some indications, apparently pointing to one system of organs as the source of headache, may be very misleading, e. g., the headache occurring only at the time of menstruation is by no means necessarily due to any derangement of the pelvic organs. We should never forget, in studying any symptom that comes on at the menstrual period, that the most normal woman is more inclined to be nervous at that time, and that the resisting powers of the nervous system to all kinds of strains is lowered. We have seen purely eye-strain headaches which occurred only at that time.

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The local irritations which cause headaches are approximately in the order of their frequency:

1. Irritation of the eyes, which may be due to astigmatism, muscular imbalance, hypermetropia, or its opposite, reinforced in cases of long standing by the irritability of the retina which they have produced. Of course, more than one of these conditions may be present in the same eye.

In these cases the pain is either (a) frontal, usually due to astigmatism; (b) occipital, often from muscular imbalance; (c) temporal, from muscular imbalance or hypermetropia; (d) or deep-seated in the eyes themselves from irritability of the retina. They are usually bilateral in simple astigmatism, but may be, especially the temporal headaches of muscular imbalance, unilateral. The pain may alternate from one side of the head to the other in successive attacks or during the same attack. They are often accompanied by nausea or vomiting, and, of course, depend much on the occupation and age of the patient. They are more apt to occur at times when the patient's nervous strength has been subjected to some special tax, such as menstruation, pregnancy, a long illness, loss of sleep, or merely an especially tiring day's work.

2. The nose and accessory sinuses: adenoids, polypi, hypertrophied turbinates, spurs, infection of the frontal sinuses, or the antrum and, sometimes, deflected septa.

In these cases the pain is usually frontal, more often than in eye-strain confined to one side of the forehead, and frequently, unlike the pains of eye-strain, the pain is limited to a small, well-defined spot, sometimes in the median line directly over the root of the nose, or on either side of this line in the lower part of the forehead, or higher up just inside the line of the hair. These are particularly apt to be morning headaches, especially in mouth-breathers, and to wear off with the more normal respiration of the waking hours, or with the better draining of the infected cavities when the patient is in an erect position. The pain is often of a duller and more deep-seated character than that of eye-strain. It may be complicated by a headache due to esophoria where the esophoria is a reflex due to the nasal disease.

3. The pelvic organs in women: retrodisplacement of the uterus, posterior parametritis, endometritis, polypi, subinvolution, sclerocystic ovaries, prolapsed ovaries, and perhaps ovarian irritation from adhesions. The pain is almost invariably vertical in cases due to diseases of the body or lining of the uterus, as in endometritis, subinvolution or polypi, and with equal certainty occipital when due to retrodisplacement of the uterus, posterior parametritis or ovarian disease. The pain in the latter situation is much less likely than the occipital headache of eye-strain to extend down into the neck and upper part of the back. These headaches are practically always bilateral. They are often worse about or during the menstrual period, but are not very infrequently characterized by cessation during the menstrual flow. The occipital headaches of uterine or ovarian displacement are often aggravated by walking or standing. They may be complicated by temporal or occipital headache due to exophoria, which is in its turn a reflex from the pelvic displacement.

4. The stomach: hyperacidity, deficiencies of the normal acid, the presence of food entirely undigested from any cause. These headaches are practically always frontal and bilateral, and are more commonly situated in the upper part of the forehead than those due to the eyes or nasopharynx. When such a headache is due to

the presence of undigested food remaining in the stomach it is readily relieved by vomiting. The occurrence of the pain soon after eating, or about the time that the latter stages of gastric digestion have been reached, is characteristic. It often occurs too soon after the ingestion of irritating food to be fairly attributable to the absorption of poisons into the blood.

5. The teeth: the irritation of decayed teeth, almost always in the upper jaw, and especially of the third molar or eye-tooth. They are usually temporal when the molars are the principal cause, or frontal especially in the case of the eye-teeth. As might be expected from their origin, they are frequently unilateral. We have seen a few cases where all the teeth of the upper jaw were in bad condition, where the pain was very diffuse and persistent, covering the whole of the forehead, temples and vertex. Occasionally, especially in disease of the third molars, the pain is confined to a small spot on one or both sides of the occiput.

6. A few cases due to the ears. These are almost the only parietal headaches due to local irritations and are unilateral or bilateral as one or both ears are involved. They may be due to the mere presence of wax adherent to the drum or to stoppage of the Eustachian tubes. They are rarely due to disease of the middle ear when unaccompanied by obvious local symptoms.

The characteristic headache in anemia is vertical, and is frequently accompanied by other morbid sensations, which the patient often describes as fulness and pressure in the top of the head, or as a feeling as if the top of the head would come off. The toxemic headaches are most commonly described as involving the whole of the upper part of the head, or as a band of pain encircling it accompanied by the sensation of pressure or constriction. The pressure of a too tightly fitting shirt band or collar around the neck may also give rise to very severe and persistent general headache closely resembling that of toxemia due to constipation, bad air, tobacco or coffee. The time of occurrence of toxemic headaches has frequently some relation to the absorption of the poison, e. g., the evening headache in a man who has been smoking too much all day, or the morning headache of the one who has spent the night in a badly ventilated room. In our experience the headaches due to the presence of some of the purin bodies in excess of the blood are more apt to be paroxysmal in the attacks than in the case of other toxemias, and rarely occur except in close connection with the presence of an extreme reflex irritation in the eyes. Another type of toxic headache is that where the area of pain exactly corresponds to the distribution of some nerve in the head, occasionally the occipital, but much oftener the supraorbital branch of the fifth. When very severe the pain in the latter case may involve the ball of one eye and the root of the nose on the same side, and the pain may be so definitely ocular in location as to make the patient himself sure that it is due to the eye. When noticeably periodical, occurring every day or every other day at about the same hour, we have occasionally been able to prove by examination of the blood that these attacks were malarial, and one can almost always obtain a history of malaria in the past. They yield readily to quinin if used in the same way that it would be for chills and fever. The headache of arteriosclerosis is very commonly occipital and may be general. The age at which it makes its appearance is often suggestive of its origin, which may be confirmed in most cases that are not very advanced by the therapeutic test of relief by the use of nitroglycerin.

MIGRAINE.

We have reserved the subject of migraine for special discussion, because our views, though by no means novel, are generally regarded as heterodox by students of nervous diseases. As a result of conscientious study of the whole subject of headaches during the past fifteen years we have been forced to abandon the common conception of the disease with which we started out.

We have come to regard the classical type of migraine as a headache due to the presence of a local irritation, practically invariably eye-strain, in an individual of markedly neuropathic diathesis in which the immediate occurrence of the attacks may be due to the special irritability of the nervous system, caused by transient but frequently recurring conditions of toxemia, which in a less neurotic individual or one who was not constantly subjected to the nervous wear and tear of the eye-strain, would be incapable of producing any such effects. The numerous peculiar cases with more psychical symptoms than the merely hysterical tendencies of a neurotic patient could account for, or those complicated by more or less transient paralysis of various ocular muscles, differ in so many respects from the typical cases and also among themselves that we fail to see how they can all be classed under one disease.

To regard all the severe recurrent headaches as a single affection, without regard to their causation, seems to us as unscientific as it would be to treat all cases of chorea or choreiform movements, from Huntington's chorea to habit tic, as one disease. That which follows is intended to apply only to what may be described as a common typical migraine.

Migraine may be described as a severe form of headache occurring at more or less regular intervals, often, though not invariably, unilateral, especially severe in the front of the head, forehead and temporal region, but extending when at its height over the whole head or one-half of it, alternating at times from one side of the head to the other in successive attacks, or even during one attack, lasting from twelve to twenty-four hours, though it may last longer, for several days, or a shorter time, only three or four hours, usually accompanied by more or less disturbance of digestion, and often ending with vomiting. The attacks sometimes terminate by the patient falling asleep to awake the next day entirely relieved. Where it does not reach a crisis by vomiting or sleep it is frequently noticed that the pain seems to wear off about sunset. Victims of these headaches are invariably of a neuropathic constitution and the disease is markedly hereditary. It comes on most commonly in childhood or at puberty and invariably, as far as our knowledge goes, fades out when the patient reaches the age of about fifty. The attacks are often preceded by prodromata, usually ocular, often accompanied by paresthesias of the neck, arm and even trunk, especially on the same side as the headache in the true hemicranial cases. They are often connected with epilepsy in a way that has suggested the possibility of a similarity of nature in the two diseases.

The etiologies suggested for this disease are sufficient evidence by their variety, and in many cases their unpracticable character, of the difficulty that the neurologists have generally experienced in explaining it. Many of the best authorities on nervous diseases lay stress on reflex irritation as the cause. The two factors which have been most emphasized have been heredity and some form of autointoxication. It is perfectly true that there is a marked hereditary element in migraine, but these

cases are simply among the most violent and regularly recurrent of the headaches which we have already analyzed, and we have stated in the beginning that a more or less neuropathic tendency is characteristic of almost every individual who suffers from recurrent headache. A neuropathic diathesis is, of course, strikingly hereditary. It should also be remembered, as pointed out by Risley in a paper read before this Association in 1899, that there are few points about the structure of the body that are more certainly inherited than the shape of the head, and that the shape of the socket of the eye ought to partake together with the rest of the head of this transmissible character, and finally that the shape of the socket may have a great deal to do with peculiarities in the shape of the eye. All that has been said, therefore, of the manner in which the disease can be traced in one generation after another in the same family, or in all of the children of one of its victims, is perfectly true. But it is far from proving that such headaches really constitute a disease *sui generis*. The usual ages of onset and disappearance of the disease is very suggestive of a different explanation. The disease rarely makes its appearance until the child is of school age, very frequently only with the increased strain on the nervous balance of puberty. And, what is very curious, if the disease is principally due to faulty metabolism, is that it invariably disappears at about the age when the victim's vital functions are beginning and his liability to autointoxication from a weaker digestion, from less vigorous action of the organs of excretion, from an impaired circulation, markedly increasing. It seems to us that a candid consideration of this one point of admittedly invariable disappearance of the disease at or about the coming on of old age is sufficient to render untenable any explanation which bases itself principally on the theory of autointoxication, whereas the age of disappearance can only be explained by assuming that it is dependent for one of its essential factors on some condition which is known to cease to exist at about that time of life. It is very hard to name anything which fulfills this requirement except the power of accommodation in the eye. Migraine disappears just when the patient ceases to be able, by any effort on the part of the muscles of his eye, to correct or accommodate for the errors in its structure. We have still to see a case of migraine that exists in an individual with no muscular imbalance and no more than the physiologic amount of astigmatism, and we have seen case after case of typical migraine completely cured, though often with much difficulty, by a sufficiently careful correction of ocular errors. We should not be understood, however, in saying this to go quite the length of some ophthalmologists who regard migraine as due simply and entirely to eye-strain. In practically every form of headache we have, to use a mathematical metaphor, to regard the disease as a product of several factors, a lack of resisting power in the nervous system, which is about what a neuropathic temperament amounts to, and secondly, some toxemia or some reflex strain due to local disease. Migraine may be regarded as a headache in which the neuropathic factor is larger than in some others, in which the factor due to local irritation is, however, an essential one, and in which, to continue the same metaphor, the product of suffering is increased, at least in most cases, by multiplying these by a third factor, that of autointoxication. We can not cure all cases of migraine immediately by fitting them with glasses, but the best possible correction of the irritation from the eyes will, in our experience, lead to

the ultimate disappearance of the symptoms. It is true here, as in mathematics, that if you can reduce one factor to zero your product will be zero. It seems to us that this is a less radical view than has been taken by many ophthalmologists. It does not ignore the neuropathic and possibly toxic factors, but it also refuses to ignore the immense importance of the eye and proposes to treat the disease by eliminating the most easily treated essential element in its causation. It is, of course, true that everything in the way of improving the patient's general health by wise diet, plenty of out-door exercise, and the greatest possible care to maintain the functions of excretion through skin, bowels, kidneys and lungs, at their best, and tonics to improve the general health, will all lessen the neuropathic and toxic factors and may in this way be of great benefit. They should never be neglected, but the very cautious way in which the eminent authorities who have advocated them as the only means of treating migraine speak of the possibility of a complete cure by such methods, is in itself a pretty good proof of their inadequacy where employed alone.

EXAMINATION OF THE EYES.

We have spoken of a "careful examination" of the eyes and it may perhaps be worth while to explain what we understand by a careful examination. The proper examination of the eyes for the correction of reflex symptoms either in the form of headaches, indigestion or "general nervousness" must be made very differently from the examinations of some otherwise excellent ophthalmologists. In the first place a mydriatic must be used. In children atropin is much better than homatropin, and at least homatropin should be used up to the age of 55. Moreover, the mydriatic must be used thoroughly. Its effects are obtained with incompleteness in too many cases. It is much safer for the ophthalmologist to put the drops in the eyes himself at his office. This requires much more time for the patient to wait around the doctor's office and somewhat more time from the doctor, but it is a point of essential importance in the more difficult cases. The most exact determination of the axis, as well as the degree of astigmatism in each eye, is essential. We always distrust a prescription, of which one sees too many, in which the axis comes out in a nice round number of degrees and the same for both eyes. It can not be too much insisted on that small degrees of astigmatism are just as likely to lead to reflex symptoms, though much less likely to lead to defective sight, as the extreme ones. The findings on the reading tests with different lenses must in every case be carefully verified by the shadow test. The patients should be told plainly that there is no use in wasting any money on glasses if they are not prepared to wear spectacles, moreover, if they are not prepared to wear them from morning till night. The patients should invariably be instructed to bring back the glasses to the ophthalmologist before the marks which the opticians use for centering the lenses are washed off, that the doctor may himself see that they are centered correctly. The patients should be told to return frequently to the optician and have the glasses readjusted, in case their frames or bows become bent. They should be particularly instructed how to take off and put on the glasses, holding them by the bows on both sides to prevent distorting the frames. Women especially should be cautioned to see that they do not catch a loop of their hair under one bow of the glass, thereby entirely altering the relation of the axes

of the cylindrical lenses to their eyes. For persons engaged in an occupation requiring much close use of the eyes ophthalmologists should be more careful than they usually are to see that the lenses are set at a proper angle to the eye, that is, so that when the patient is looking down at her sewing or writing she will not be looking through the very lower edge of the lenses and that at a decided angle to its surface. The toric lens overcomes this difficulty to a great extent. If there is any evidence of retinal irritation at the time of examination, the first pair of glasses at least should be amber tinted. The same minute attention should be paid to details in the examination and treatment of the nasopharynx and pelvic organs.

We venture to say that most neurologists who are skeptical about the importance of the eye as a factor in migraine and many other less severe forms of headache have failed to give this much consideration to the details of the oculist's treatment, but if we do not pay unremitting and exact attention to all these minutiae we shall continue to see cases of migraine that are not due to the eyes.

We would not be understood as confining all treatment of headaches to the removal of local irritations or the elimination of poisons, although we believe this to be the most fundamental part of the treatment. Any tonic treatment directed to the general health, especially to the removal of the anemia, the improvement of digestion and the functions of excretion, and above all, everything tending to the improvement of the nervous tone and mental condition, should prove of the greatest value, but such treatment ought by no means to be confined simply to drugs. General massage is of special value in the toxic cases, and local massage to the head and neck is often of great use in relieving the individual attacks. Medical gymnastics and all kinds of rational out-door exercises should be strongly recommended. To the ordinary kind of exercise in a gymnasium we would attach much less value. The gymnastics should not be attempted unless they are carried out under the care of an experienced masseur and medical gymnast, who at the same time realizes the limitations of his functions and takes his orders directly from a physician. Cold bathing in the form simply of friction by the means of rough bath mittens wet in cold water (ice water if the patient will stand it), followed by a vigorous rub-down, the drip sheet, the tonic bath, are all of use in properly selected cases. We have found the employment of vibration, vigorously and thoroughly over the thoracic region of the spine and the hepatic and splenic areas, of decided benefit in some cases of toxic headaches. General faradization with mild currents, and prolonged wave current treatments with the static machine, are of great value, especially in the toxic cases, and the latter wherever the patient is very neurotic. The positive breeze from the static machine applied to the head gives great relief to the attacks in many cases. The most universally good effect of this treatment, and also of local massage designed to reduce congestion, are confirmatory of our impression that in practically all headaches, except those which are a distinct neuritis, whatever the primary cause, the immediate cause of pain is congestion. This we believe to be true even in anemic headaches. Of tonics, strychnin in some form is enough in many cases to stop the recurrence, at least for a time, of some forms of eye-strain headache. Iron is, of course, indicated in the anemic cases and, we believe, in many others. The proneness of those subject

to headaches to develop them from taking iron is well known. In cases where Bland's mass, the chlorid, citrate or dry sulphate of iron cause any increase in the symptoms we usually administer the lactate, which we have found much freer from unpleasant effects in headache patients. We have met with little satisfaction in the use of the many and much vaunted forms of so-called organic iron. Arsenic in the form of arsenate of soda is less irritating to the stomach than Fowler's solution, or if combined with mercury in the form of Donovan's solution is of the greatest value in many obstinate cases, especially of the more severe types. In headaches involving the distribution of the supraorbital, or of any other definite nerve in the scalp, we have found great benefit and often permanent cure from the systematic use, up to the point of toleration of each drug, of two grains of quinin sulphate and 1/400 of a grain of nitrate of aconitin given every two hours in separate tablets, so that either can be discontinued on the appearance of the appropriate indications.

In some cases of migraine, especially where exophoria was present and the pain principally in the temple or occiput, we have found marked benefit from the use of cannabis indica in from 1/8 to 1/4 grain doses of Hering's extract three times a day continued for a long period. In the matter of drug treatment the same attention to details is of importance as in the fitting of glasses. The physician who prescribes such drugs as aconitin, cannabis indica or ergot without the most careful supervision of their quality will constantly be disappointed in the results.

The importance of the toxic element in the immediate bringing on of an attack of migraine is well illustrated by the best methods for aborting the beginning of the attack. Thorough lavage of the stomach, followed by the administration of salicylate of soda or aspirin combined with a good dose of caffeine, or, still better, given in strong black coffee, has proved of more service in our hands than any other treatment when the attack first begins. Another resource when the pain is principally frontal is spraying the nose with a very strong, say 20 per cent. solution, of cocain. The character of the drug should be unknown to the patient. When called to a case in the midst of a violent attack of any kind of headache, which is well under way, we do not hesitate, if we are fairly well satisfied that it is due to an ultimately removable cause, to administer a hypodermic injection of morphin with atropin and to repeat it if necessary until the patient is comfortable. In a severe headache, which has already lasted for a couple of hours, we are convinced that even where there are no particular gastric symptoms the stomach is in such a condition with the majority of patients that any drug put into it is simply wasted as far as relief is concerned, and many of the unpleasant results of using the coal tar products have been due to the administration of repeated doses under these circumstances, where no relief was obtained until the headache began to go off of itself, and then all the successive doses were apparently absorbed about the same time. Where one does decide to make use of the coal tar analgesics, antipyrin has seemed to us much the safest and as efficient as any other. We always guard it with caffeine, and the same effect will be obtained from a much smaller dose if the drug is administered in an effervescent form. The hard compressed tablets, so commonly in use, dissolve with greater difficulty than many realize, and a powder is much preferable where an effervescent salt can not be used.

DISCUSSION.

DR. WM. HEALY, Chicago, has seen cases in which, although no correction of vision was needed, reduction of the amount of eyework brought about cessation of the pain. On the other hand, in cases in which refraction was done by a good man and even corroborated by another, there were frequent recurrences of the headache until there was a decided reduction of the work done by the corrected eye. Eye-strain which causes headache may, he said, be either use of eyes which refract imperfectly or it may mean merely overuse.

DR. HUGH T. PATRICK, Chicago, speaking of the relation of migraine to eye-strain and the relation of eye-strain to migraine said that the author's results in the treatment of migraine by the adjustment of glasses have been very much more fortunate than have his. Every case of migraine that comes to Dr. Patrick is at once sent to a competent oculist, provided an eye examination has not already been made. Ordinarily the eyes have been attended to before he sees the patient. But the cases in which the migraine has been cured by the adjustment of glasses are of the extremest rarity in his experience. This is, of course, assuming that the headache is really migraine. The single element of heredity, Dr. Patrick thought, would throw some light on his poor results, because in the cases he sees the element of heredity, not only indirect but direct heredity, is of surprising frequency. The fact that the patient has what she calls sick headache, that her mother had what she called nervous headache, and her grandmother had what she called neuralgia, does not alter the fact that all three had migraine, and, if that fact is taken into consideration, there will generally be found somewhere in the family a history of migraine. Dr. Patrick inclined to the belief that some of the men who get such very brilliant results from the adjustment of glasses in migraine are not dealing with typical cases. Heredity also plays an important part in the production of the refraction errors, and that parents with errors of refraction are very apt to have children with errors of refraction, but, nevertheless, Dr. Patrick does not believe that cases of migraine are cured by the adjustment of glasses, at least not in the proportion mentioned by the author.

TRICHOPTHOPHOBIA.

FEAR OF DISEASE OF THE HAIR.*

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The subject of the pathophobias is such an extensive one and so particularly within the scope of neuropathology that my object is simply to classify those pertaining to the hair and to speak of some of the diseases of the hair and scalp giving rise to them. Under the term trichopathophobia, from *τρίχ* hair, *πάθος* disease, and *φόβος* fear of, I wish to include all those cases of mental worry in regard to the hair, such as: Worry over the loss of hair or over the hair falling out; worry over the color or change in color of the hair; worry over a change in characteristics—brittleness, kinkiness, lack of gloss, etc.; worry over excessive growth in unusual places—hirsutes, hypertrichosis; worry over the failure of hair to grow where it should.

THE FEAR OF THE HAIR FALLING OUT.

The rôle played by the hair as a fetich of sexual attraction is so well known as to be consciously or unconsciously employed by both sexes. In the lower animals it is the male who parades his hirsute adornment as a means of sexual selection, and in savage races it is even

* I wish to thank Dr. Achilles Rose, well known for his writing on medical onomatopoeia, for his interest and assistance in selecting the word "trichopathophobia" to describe these conditions.