Headaches / by G. A. Gibson.

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Edinburgh Health Society.

HEALTH LECTURES FOR THE PEOPLE.

HEADACHES

BY

G. A. GIBSON, M.D.,

EDINBURGH:
MACNIVEN AND WALLACE.
1886.

HEADACHES.

By G. A. GIBSON, M.D.

"I pray God that our hedes never ake."—Chaucer.

These words, drawn from "the pure well of English undefiled," may serve as a text for my remarks this evening. They prove that the father of our literature stood in wholesome dread of an aching head, and may be taken as evidence that the author of five hundred years ago was not exempt from the ailments of his followers. The brain-worker, in truth, has at all times been more liable to headache than other men, and we find that one of Chaucer's successors, Pope, writes feelingly of being

"at some dear idle time,
Not plagued with headaches or the want of rhyme."

Headaches have been known since the dawn of history, and although I have mentioned the brain-worker as their greatest victim, he cannot be regarded as being by any means the only sufferer. The young and the old, the rich and the poor, are alike in their liability to them.

"From the cruel headache
Riches do not preserve,"

says Sidney, and we are forced to recognise the fact that no civilised race escapes—no station is above a headache.

Our subject, however, appears to have a growing importance, inasmuch as headaches and allied nervous troubles are increasing in number. Not that there is any increase in the number of severe nervous diseases—that is not my meaning; but there can

be no doubt that in our day we are of a more nervous type than our forefathers were. Our modern habits of life make us much more sensitive to every impression. Contrast the state of primitive races with that of civilised nations. The dusky savage, spread out at ease with his feet in the sunshine, and his head in the shade of the friendly palm which affords him shelter, clothes, and food, rarely suffers from any nervous symptom until the trader has made him acquainted with the doubtful blessings of rum and tobacco. With the European the whole aspect of life is different. The complex relations of modern society, the restless bustle of the city, the exhausting effects of late hours, the continuous tension caused by new means of communication—these and many attendant circumstances reduce the leisure necessary for the restoration of body and mind after the wear and tear of daily life. Even the division of labour, which is regarded as of such advantage in assisting our modern methods of work, may tend to make men more susceptible to nervous affections, for, by narrowing their lives and lessening their interests, it naturally makes them one-sided, and therefore imperfect.

The art of medicine itself has done something to increase the tendency to such troubles. Modern preventive methods have gently fanned and brought to its full glow the smouldering flame of many a weakly life that in sterner times, after flickering for a brief space, would have gone out before the strong gusts of a ruder atmosphere. As such feeble lives in their turn give rise to other feeble lives, medicine tends to produce individuals of a less robust type.

We are more considerate in our treatment of the weak now than our ancestors were, and possibly we may in this way over-estimate the increased tendency to nervous symptoms. Formerly, many affections were included in a vague group of maladies termed "the vapours." It is somewhat difficult to define this arbitrary class, and to fix with exactitude the meaning of the phrase; but it may be said that several diseases, now carefully treated on rational principles, were regarded as the products of a flighty imagination.

Before plunging into the subject of this lecture I should like to say a few words on pain in general. Pain is a subjective sensation, that is to say, a state of consciousness produced by irritation of some sensory nerve. Sometimes the mind correctly

interprets the message sent by the nerves to the brain, sometimes it does not. You all know the effects of pressure upon the inside of the elbow, that part which is called the "funny bone." The pressure upon the elbow is felt, but besides that there is a tingling in some of the fingers, although they have not been touched. This feeling is caused by the habit of the brain to translate irritation of a nerve as being irritation of the ends of it, and when you irritate the large nerve which lies on the inside of the elbow the brain reads that irritation as if it were applied to the fingers. Whether localised rightly or wrongly these subjective sensations are of importance. There ought to be no subjective sensations, and in health there are none. Their presence shows that something is going wrong. Do not therefore consider pain as altogether an evil. It has important uses. It is to be regarded, in the same way as you regard the red light on the railway, as a signal of danger. But having called attention to the fact that there is danger, the signal has done its duty, and is dropped whenever the line is clear; in the same way, when pain has shown the need for rest and repose it has fulfilled its part, it must be got rid of, as it is after this only an evil. In our times no one ventures to uphold the view that pain is a necessary discipline from whose useful correction it were sinful to seek relief. Not very long ago a chorus of disapprobation, to put it mildly, was raised over the employment of anæsthetics for the relief of suffering womankind, because, forsooth, the beneficent drugs appeared to some superstitious minds as an infringement of an old world curse. Happily such ideas are now only relics of an almost forgotten past; and, although we clearly recognise that men and women are made "perfect through suffering," we do not admit that unnecessary suffering is to be regarded as a means of good.

In taking up our subject, it will be necessary to glance briefly at the structure of the head, in order to form some conception of the parts involved. It will then be our duty to ascertain the cause of the pain, along with the other symptoms which accompany it. And lastly, it will fall to us to consider the means of alleviating the suffering which is caused. With regard to this last aspect of the subject, I conceive that I shall best perform my duty by pointing out how to avoid, rather than how to cure headaches. At the present day the highest aim of the healing

art is to prevent disease by striking at its causes. These are manifold, but we may say with truth that most maladies are direct or indirect results of the neglect or defiance of the Laws of Nature. It cannot be too widely known that life can only be lived well when these laws are followed. "The Reign of Law" must be respected here as well as in every other division of the realm of Nature.

With primitive races an illness, like any other interruption of the regularity of natural phenomena, is, as a rule, attributed to the operations of some malevolent power. The Maories of New Zealand, for instance, have, or had, a special devil named Tonga, whose malign influence was held responsible for any headache that might occur. With such theories on the subject of the causes of disease, it is no wonder that the magician was called in to exorcise the fiend, and drive away the disease.

In the middle ages, when the various saints of the calendar were worshipped as minor deities, the belt of St Guthlac was believed to be a sovereign remedy for headache.

Even in comparatively modern times strange customs, based on superstitious beliefs, have been current. To cure headache, a snuff made by powdering dry moss which had grown on a human skull was at one time employed. The discarded skin of a snake was bound around the head in obstinate cases. But even this strange method of relieving an aching head is a refined mode of attacking the disease compared with the employment, in the same way, of a halter with which some one has been hanged. Binding such objects round the head probably originated in the fact that headache is often temporarily benefited by tying a handkerchief or towel about the head. This has for ages been done; and you will remember that Shakespeare makes Arthur, in the pathetic scene where he is pleading for his eyesight, say to Hubert—

> "When your head did but ache,
> I knit my handkercher about your brows."

To return to the subject from which I have wandered, I would only add, that headaches may best be avoided by leading, in its widest sense, a healthy life. Regular hours of work and rest, attention to diet and clothing—these, and all the other matters

understood under the term hygiene, must have their due share of attention. Celsus, whom I may call a fashionable physician of the Augustan age, for he flourished in Rome during the first century, remarks that "he who is daily occupied, whether with private or public affairs, should set apart some part of his time for the care of his health." This maxim is applicable to everyone, no matter in what station he may be placed.

The head is beautifully adapted to afford shelter to the central nervous system, and to bring the organs of special sense, to wit, the eye, the ear, the nose, the tongue, into intimate relationship with it. When taking a rapid survey of the anatomy of the head, I shall ask your attention especially to one important subject —the relation of the different structures, seen in Fig. 1, to sensibility and sensation; that is to say, we must distinguish those parts in which pain may be felt from those which are not sensitive.

The skin and the loose textures beneath it are abundantly supplied with nerves of sensation which are prone to every kind of neuralgic pain.

In the few muscles of the scalp nerves of sensation are present, and in rheumatic conditions these muscles can be the seat of pain.

The skull or bony framework contains some nervous filaments, but it is not particularly sensitive except when there is some inflammatory affection.

The membranes, which line the cavity of the skull and provide coverings of exquisite delicacy for the brain, may be spoken of collectively, although strictly they are three in number. Here there are numerous branches of the chief nerve of sensation belonging to the head and face, and it is not to be wondered at that in affections of these membranes there is excruciating pain.

Lastly, we have to consider the brain itself, composed of cells that generate or modify nervous energy, and fibres that conduct it. It is not of course my province to enter upon a description of this organ, but there are two points which I wish to impress upon you. One of these points is that although the brain is the seat of the perception of all sensations, it is throughout most of its extent absolutely devoid of sensibility itself. It certainly seems paradoxical, but it is a fact. That the brain, capable as it

is of translating the irritation of a distant nerve into the sensation of pain, and localizing that sensation in the region irritated, should be incapable of feeling any direct irritation applied to itself is at first sight surprising. The brain can be cut away slice by slice, or torn to pieces almost down to the beginning of the spinal cord, without producing the least symptom of pain in animals. This fact alone would not carry

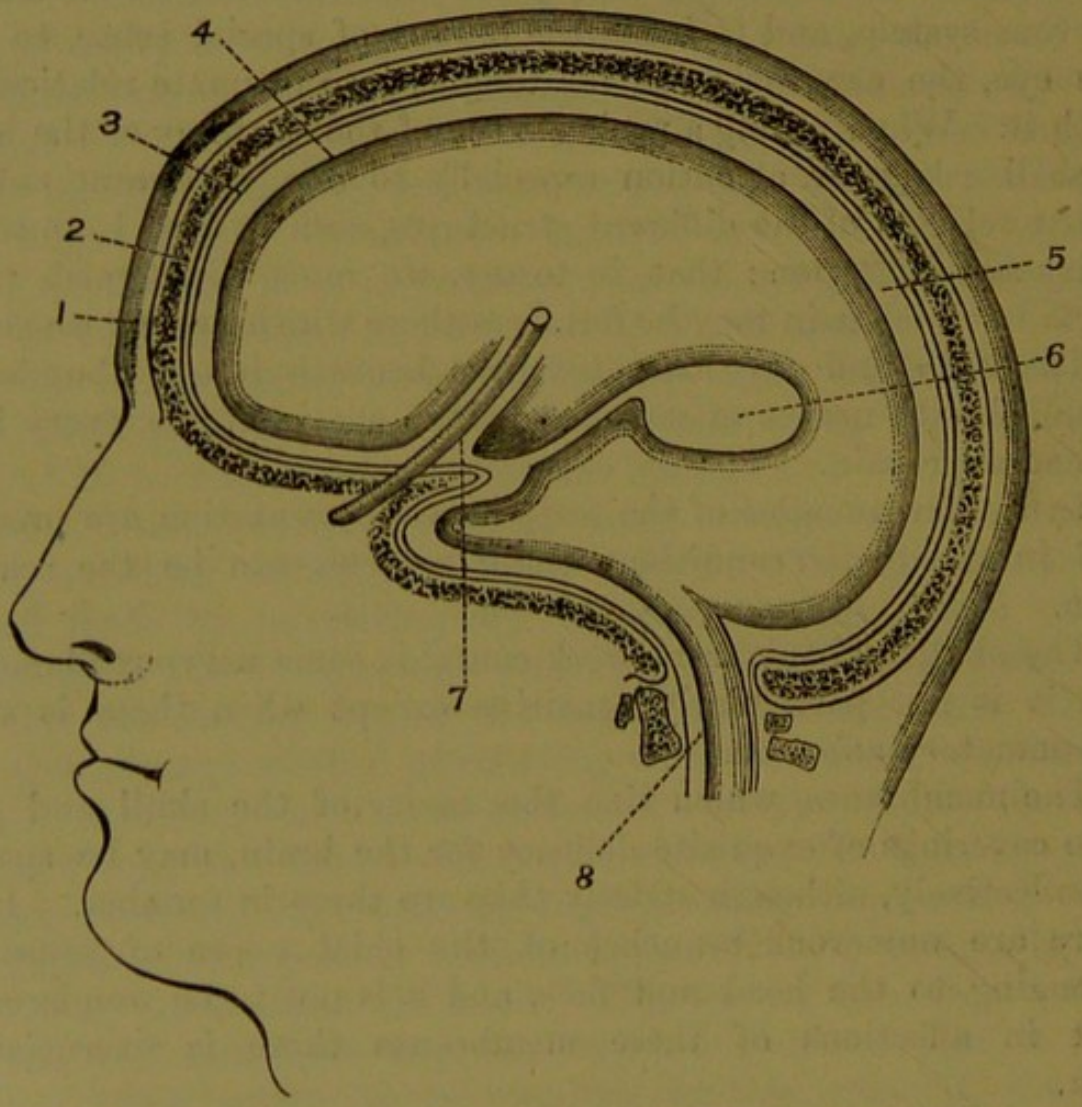

FIG. 1.—Diagram of the relations of the brain and its envelopes. 1. The skin and subcutaneous tissues. 2. The skull. 3. The membranes. 4. The brain. 5. The space surrounding the brain, communicating with—6. That inside the brain; 7. That around a blood-vessel; and 8. That of the spinal canal.

so much weight with us in itself, for, as Dr Ferrier says, "Frog and pigeon physiology has too often been the bane of clinical medicine," but it is supported by the evidence of disease. In man tumours as large as a duck's egg have been found after death in the brain, where there has not been the least symptom of dis-

ease during life. We must therefore conclude that the brain, although registering sensations from other parts, is not capable of feeling. It is, however, quite possible that it may become sensitive when it is diseased. The nerves of the stomach, as a rule, send no messages to the brain, unless food has been too long withheld or is taken in too large a quantity, but in certain conditions they give rise to most agonising sensations. The same may be the case with the brain.

I wish also to call your attention to the conditions of the circulation in the brain. The brain receives a relatively large amount of blood, and for this large blood supply special arrangements are provided. You can easily imagine that the total contents of an unyielding box like the skull cannot vary in amount. Without some special provision there could be no variation in the quantity of the blood. But no mental process occurs without some increase in the stream of blood through the brain. Some years ago I used frequently to see a gentleman who gave in his own person an excellent proof of this statement. When a boy he had received a kick from his pony upon his forehead, which shattered the skull in that region. Under the care of his medical man in the country, aided by the counsel of our own Syme, he recovered, but with a permanent opening in the skull—an opening only filled up by the skin and soft parts beneath it. The opening was shown by a hollow on the brow, and this depression exhibited a rise and fall accompanying the flow and ebb of the blood. When he was at rest the movement was uniform and regular, not very conspicuous, but quite sufficiently distinct to allow the number of pulsations to be counted. When, on the other hand, he was engaged in any mental process, the movement became much more striking. He was a business man, and apt at figures, so as a good test I was in the habit of asking him to work out problems in what schoolboys call mental arithmetic. When he multiplied 79 by 97, or performed any similar piece of arithmetical gymnastics, the depression was instantly replaced by a swelling, which exhibited the same rise and fall as the hollow. Taking advantage of the graphic method of registering movements, I obtained several tracings from the opening by placing a lever over it which marked the vibrations upon a sheet of paper spread upon a revolving cylinder. These tracings are represented here, and

you will be able at a glance to observe how the lever rose on the mental operation, as shown in the upper curve of Fig. 2.

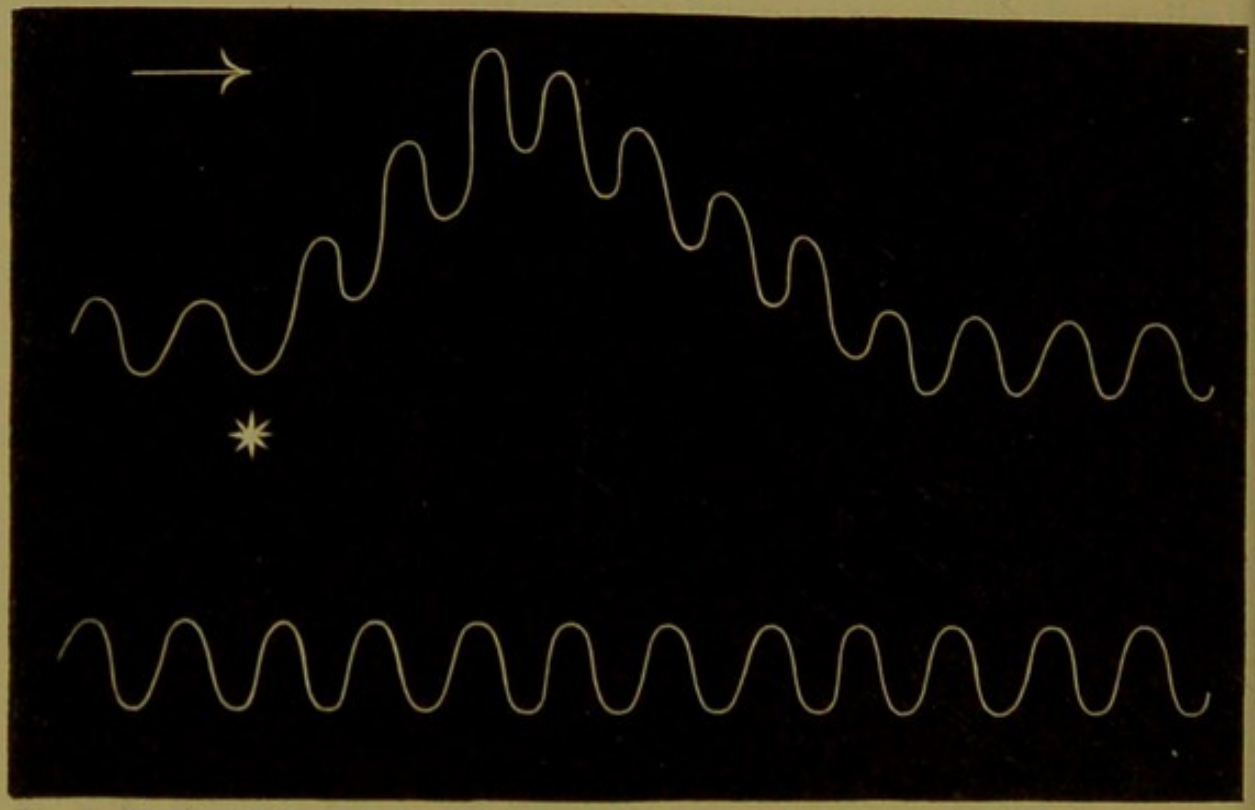

FIG. 2.—Tracings taken from an opening in the skull communicating with the brain. They are to be read from left to right in the direction shown by the arrow. The lower curve gives the movements when the patient was at rest. The upper curve was taken when the mind was occupied,—the asterisk marking the commencement of mental activity.

The alterations in the quantity of the blood are allowed by a beautiful arrangement whereby an increase or decrease is provided for. Around the brain and inside of it are spaces communicating with each other, and with the spinal column. All these are full of fluid, which can freely pass from one to another—not only so, but the blood-vessels of the brain are surrounded by spaces also full of the same fluid in free communication with that already mentioned (see Fig. 1). In this way is permitted the influx of blood which is caused by any excitement of the mental processes, and similarly the diminution which occurs in sleep as a consequence of the exhaustion of the nervous centres. In the one case the fluid which I have mentioned is replaced by blood, in the other it takes the place of the blood.

These introductory observations will enable us, with a fair prospect of mutual understanding, to enter upon the special subject which has brought us together.

Let me mention briefly how headaches may be classified. For

our present purpose the simplest arrangement will be to place them in three main divisions according to their causes. These are—(1) Changes in the blood; (2) Variations of the circulation; and (3) Alterations of the nervous system.

We shall in the first place consider the headaches which have their origin in various modifications of the blood. Such changes in the condition of the blood induce an irritable state of the nervous system. It has been well said by Romberg that "pain is the prayer of the nerve for healthy blood." As the headquarters of the nervous system, you will easily understand how the head is liable to pain, but from what I have told you regarding the relative sensibility of its different structures you will also easily understand how very difficult it is to give a satisfactory explanation of the exact mode of production.

As types of headaches depending on blood changes, I may mention in passing, but cannot dwell on, those which are invariably present in such fevers as typhus, typhoid, and scarlatina. In all such diseases the pain, which is situated over the brow, is due to the specific poison circulating in the blood, and it is usually present before the feverish symptoms show themselves. I need not detain you by saying another word on the subject, but before leaving it I would seize the opportunity to entreat you most earnestly to remember that all these fevers are preventable diseases. Some years ago Mr Chiene brought before you the enormous cost entailed by these unnecessary diseases. Much has been done to stamp them out, but much yet remains to be done.

Two varieties of headache caused by certain constitutional blood taints must be mentioned—I refer to the gouty and rheumatic headaches.

The gouty headache, usually confined to the front of the head, is said by a respectable author to be "due to the same causes that usually give rise to the gout itself—over-feeding and laziness." But this is rather hard on those who inherit a predisposition to the affection in its irregular form, and who are for the most part amongst the most abstemious of men. It is chiefly amongst the sufferers from hereditary gout that the headache over the front of the head is found. This form of headache is very frequently accompanied by a painful sensation of pressure on the eyes, which

is probably caused by over-filling of the blood-vessels, and sometimes also by a darting neuralgic pain on the brow in the situation affected by tic. These troublesome symptoms, which are greatly on the increase, are more or less associated with gouty dyspepsia, or gouty skin affections, or some other manifestation of this most protean disease. I cannot, of course, enter upon the question of treatment—to do so would be to launch out into a treatise on gout itself; but I may suggest that the application of heat locally, in the form of hot water, gives great relief. The treatment, however, is simply that of the constitutional state, and each case will require its own special lines of treatment.

The rheumatic headache, which is vastly common in this country, has its position somewhat widely extended over a large area of the brow, the temples, or the back of the head. It is a muscular pain of a dull aching character, and the painful parts are always tender to pressure and worse at night. It is often induced by a damp atmosphere or a draught of cold air. For its relief is required the treatment of the rheumatic tendency, with careful regulation of the diet and clothing. Cold water in this condition is only to be applied to the head with caution.

We have amongst us a good many every-day causes of headache depending on digestion. One very fertile source is over-eating. The headache which follows indiscretion in eating is partly caused by the changes in the blood, but partly also, as will be mentioned later on, by the nervous influence transmitted from the outraged digestive organs. There is usually severe pain over the front of the head, with a general sense of fulness in it, the eyes are heavy and the sight is often dim, the extremities are cold, and there is usually nausea, with a foul tongue and heavy breath. Vomiting is common, and may be so severe as to produce exhaustion, followed by sleep and recovery. Such a headache may be in part the result of exhaustion. If the system is worn out, the digestive organs are in consequence unable to digest the wonted food. In such a case it is not the fault but the misfortune of the patient, and what is wanted is an improvement in the general condition. But on the other hand it may be due to a culpable want of self-control in the matter of food, and every class and rank of society have examples of this weakness. The remedy naturally lies in the hands of everyone, for it is easy to avoid excess.

Among the innumerable wise utterances of our well-beloved fellow-townsman, Professor Blackie, are what I may call his maxims on dining. He stated some time ago that he found a dinner party to be a most excellent field for the exercise of the grace of self-denial. I cannot at this moment remember whether he laid down the rule that every second or every third dish ought to be passed, but it was one or other, and probably he may have allowed it to vary with circumstances.

There are many persons, belonging of course to my own selfish sex, who persist in gorging themselves with unvarying regularity, and yet manage by the aid of what are called "dinner pills" to escape retribution for a longer or shorter period; sooner or later, however, the process comes to an end, and, after more or less of penance in one form or another, the sinner has to betake himself to a different life as regards diet. Such men seem to think that after a long course of self-indulgence, the doctor can wipe away all the effects of their past errors, but it cannot be too widely known that there is no such thing as medical absolution.

There is also the headache produced by the abuse of alcohol, which I shall have to make some remarks upon, although I can hardly deem it a necessary subject to bring before the Health Society. Fortunately, while the population of this island is increasing, the consumption of alcohol is diminishing; medical men, nevertheless, are still not infrequently witnesses of the effect of the abuse of strong drinks. A man who has produced the after effects of indulgence of this kind, suffers from a dull headache over the forehead, throbbing over the temples, giddiness, nausea, and, as a rule, vomiting. He is sick in body and mind; he evinces a preference for solitude, and expresses a desire for soda-water, usually with a little brandy in it, "just to take the chill off;" he has very commonly some plausible story about a lobster or a cucumber, to which his doctor, waiting for a more convenient season, and disliking to hit a man when he is down, listens with a grave professional scepticism, and leaves the patient for the nonce to a melancholy chuckle over the supposed success of his inventive powers. As to the prevention of this kind of headache I think I may say nothing.

There is a point to which I may briefly invite your attention before leaving the question of the abuse of alcohol. It has been

stated that different kinds of spirit seem to affect different parts of that region of the nervous system concerned with the upright position. Good wine or beer is said to cause a man to fall on his side, whiskey, and more especially Irish whiskey, on his face, and cider or perry on his back. If this be so it may be possible to tell from the position of the misguided being what he has been drinking. But what I wish to say especially is that if different kinds of spirit affect different parts of the brain, the pain which follows ought perhaps to be found also in different spots. My own observations will not furnish any facts bearing on this question.

One other matter before I leave this part of our subject. There is a custom, very common, I believe, in Edinburgh, of allowing the workmen in the breweries to drink beer rather freely. I find that the men have been served before they go home to breakfast, before they go home to dinner, before they go home to tea, in addition to another quantum in the middle of the forenoon, and sometimes again in the afternoon. The amount given each time is technically called a "horn," and enquiry regarding the equivalent of this in imperial measure elicits the fact that it is "about a pint." The pint is probably like the Highlander's "mile and a bittock;" and when you consider that the beer served out is what brewers call "returns," and, further, that it is taken on an empty stomach, you will not be surprised when I tell you that those of us who have performed the medical duties of the dispensaries of this city, have had frequent and painful opportunities of studying the evil effects of this baneful system. I would say no hard words about anyone who brews good honest beer, but I wish most distinctly to protest against those who give a kind of alcoholic hog's wash to their men. Let them run this refuse into its proper place—the gutter; let them, if they like, give their men a glass of decent beer when their work is over for the day; but let them grant slightly higher wages to those who decline to take it; and they will do much to improve the condition of their workmen.

To return from this digression. There are headaches commonly called bilious, which are more especially found in those who have lived in the east. The situation of this headache is usually over the brows, the tongue is dirty, the breath foul, the skin sallow, and the eyes yellowish; and with these symptoms there is con-

stipation, with pain in the right side and shoulder, which is attributed to the liver. The temper is irritable, the spirits are depressed, the dreams are frightful.

The common cause of this condition is the use of food which is too stimulating, and the habit of taking "pegs." A "peg" is composed of a bottle of potash or soda water with a quantity of brandy in it, varying in amount according to circumstances. The combination is popularly said to receive its name from the fact that each dose of the mixture is likened unto a peg in the coffin of him who takes it; it is not surprising, therefore, that it leads to the use of such compounds as "corpse-revivers," and drinks known under other euphonious terms. Although relatively more common in warmer climates, this condition is frequent in this country, for the "peg" of India has its analogue in the "nip" of Scotland. The means of prevention need not be referred to.

Among the headaches of perfectly innocent indigestion, I may refer to some mentioned by Dr Lauder Brunton, all of which I believe to be produced more through the blood than through the nervous system. He describes the headache of constipation, which is always over the forehead, as being invariably relieved by saline purgatives. He further mentions headaches of indigestion without constipation, pointing out that there is one form, found just above the eyebrows, curable by acids; and another, just below the hairy scalp, curable by alkalies. These facts are simply drawn from experience, and no explanation is offered of them.

Also to be included amongst the headaches caused by noxious substances circulating in the blood, are those due to bad air. The simplest cause of such headaches is imperfect ventilation, by which too much carbonic acid is present in the air. The natural proportion of this gas in the atmosphere varies from three or four to nine or ten parts in ten thousand, but in churches, when a popular preacher is in the pulpit, or theatres, when a "star" occupies the boards, and many other resorts of mankind, the air is so polluted with respiration and gas-light, that the proportion is much higher. Even a small excess above the natural amount produces bad effects on the system by interfering with the purification of the blood in the lungs, about which Dr Graham Brown will speak in this place next week. By this means vitiated

blood is sent to the nervous system, and the result is a dull heavy pain over the brows and forehead, with languor and lassitude, or even prostration of physical and mental powers. These symptoms sometimes persist for some time after an escape has been made from the poisonous atmosphere.

Many of the squalid homes of the very poor in our midst are in the highest degree unhealthy from this cause. It would be a relief to give vent to strong feelings on this subject by saying some bitter things about the owners of such dens, and a pleasure to mention the philanthropic labours of others who are endeavouring to provide better abodes for these poor people. I shall, however, on this occasion forbear, merely remarking that in many instances the very dilapidation itself, into which such houses have fallen, may be the salvation of the inmates, for it provides ventilation of a kind through the cracks and crannies.

Another and more serious source of danger in the air, is the presence of sewer-gas. In old houses the waste and soil pipes are usually combined in one single tube, which commonly runs inside the walls. When such pipes have become corroded and leaky, the gases pass from them into the house. In all modern houses of good construction the waste and soil pipes are kept separate, and they are placed outside the walls, with careful arrangements for trapping and ventilation. But there are houses of another kind, run up, not for the unwary inhabitant to live *in*, but for the "jerry builder" to live *by*. In such houses we often find that the inmates suffer from headaches resembling those caused by defective ventilation, from low forms of sore throat, and from troublesome inflammations of any wounds that may happen to be present.

When the medical man endeavours to discover the cause of these symptoms, he finds many different examples of dishonest invention. There may be, for example, such a piece of perverted ingenuity as a pipe from the house leading to nowhere, and another pipe at the sewer coming from the same indefinite region. Or the fixed basin, which the inhabitant finds to be such a convenience in his bedroom, may be destitute of the bend which should prevent the escape of gases from the pipe, and thus it acts as a most efficient conductor of these gases to the room in which the unconscious sleeper passes a third part of his life. Instances

of such grim practical jokes might be multiplied indefinitely. It is not part of my instructions, however, to dilate on sanitary engineering, but I wish, nevertheless, to remark before leaving this aspect of the subject that the rascally tricksters, who thus emperil the lives of their fellowmen, should be convicted of culpable homicide, if not of murder, in such instances as have led to fatal results.

Lastly, among headaches having their origin in a changed condition of the blood, let me refer to those caused by simple impoverishment. You all know that when a plant is deprived of light and air it loses the healthy green of its leaves. In the same way human beings become blanched under similar circumstances. This occurs chiefly amongst the female workers of our large cities, and they suffer very frequently from headaches in consequence. These are almost invariably situated at the top of the head, and are attended by a beating or hammering sensation, while the patient is pale, with bloodless lips, dark circles round the eyes, palpitation, breathlessness, and swelling of the ankles. The means of cure are the use of iron, with good food, fresh air and sunlight, and such headaches can be prevented by attention to the three latter factors. Workrooms in addition to being carefully ventilated, should have plenty of light from the sun.

The second division of headaches must now occupy our attention. You will remember that it includes those which are caused by changes in the circulation, that is by variations in the amount of the blood flowing through the nervous tissues. That variations are possible, is of course clear to you after my remarks on the arrangements of the circulation in the brain. The fluid to which I referred offers the means of adjusting the quantity of blood, acting as a safety-valve when there is an increase, and supplying the place of the blood when it is lessened in amount.

But notwithstanding this beautiful arrangement, alterations in the quantity of the blood cause pain, probably through the nervous supply to the membranes of the brain.

Let me refer once more to the gentleman with the opening in the skull. I invariably found when I exerted any pressure upon the opening that he suffered from a diffuse pain over the entire head. This may be regarded as analogous to increase of pressure through the circulation.

The blood may be increased in the head in over-filling of the

circulation as a whole—the state known as plethora, which is not nearly so common now as it used to be. In this condition there are frequent headaches attended by fulness of the head, sleeplessness, giddiness, singing in the ears, and mistiness of sight. In those who are below middle age the pain is usually situated over the forehead, and is of a tearing character; while in elderly people the position is at the back of the head, and the feeling is throbbing in its type. The pain is always increased by any stimulus, such as light or sound; even thinking adds to the suffering. Saline aperients, with low diet and abstinence from every kind of excitement, are specially called for if such an attack has come on, while careful regulation of food, drink, work, and rest must be insisted on as means of prevention. Sometimes in this condition there is bleeding from the nose. It is not to be stopped.

Again, from some cause acting locally, such as work or worry, there may be an increase of blood in the head without any general increase throughout the body. The head symptoms in this condition are almost the same as those above mentioned, but the general state of the patient is entirely different. Instead of a hale, hearty man, with ruddy visage and well nourished frame, there is an individual of the Cassius type, and to the medical observer the differences as regards the circulation can be accurately gauged by the pulse. This condition is very nearly allied to that produced by exhaustion, which will be looked into immediately, and the treatment may be summed up in one word—rest.

These condititions are what are called active congestions.

In consequence of diseases of organs elsewhere there are sometimes headaches caused by pressure of the blood upon the nervous organs of the head. I cannot enter upon this subject, as it is a matter for the patient and his physician, but I may mention that headaches sometimes, though not very often, depend on affections of the heart or kidneys.

Very frequently a cough produces headache. The cough, which is simply an exaggerated and modified form of breathing, increases the pressure upon the great veins which bring the blood back to the heart; this increase of pressure prevents the return of the impure blood from the head, while the heart continues to pump blood thereto, and the result is a rise of pressure. With each fit of coughing there is a fulness of the blood-vessels of the

head and neck, with flushing of the face, lividity of the lips, and suffusion of the eyes as symptoms of what is passing inside. With these appearances there is a sharp pain through the head accompanying each attack of the cough.

These conditions are termed passive congestions.

Then, on the other hand, from severe losses of blood there may be a diminution of the quantity of the blood circulating in the body as a whole, for the vessels can contract and accommodate themselves to the smaller amount; in this way less circulates through the nerve centres. The headaches produced in this manner, by want of proper nourishment, are dull, constant, and diffuse, with giddiness and faintness. They can only be relieved by improving the general condition.

The headaches belonging to the third group are the result of changes in the nervous system. No doubt there are often disturbances of the circulation, and sometimes alterations of the blood, along with perversions of the digestive and nutritive processes, the nervous change, however, is the primary cause of the headaches placed in this division.

There are many headaches which are simply caused by exhaustion, and as types of these I may mention that which is left as a symptom of nervous depression after such an acute disease as typhoid fever, or that which follows the fatigue consequent upon long continued cough.

Mental work and business worry, if not relieved by some recreation, are apt to induce, as one of the symptoms of nervous exhaustion, a general headache. The fair sex is not exempt from headaches of this kind, at least those who have household duties to look after, for there is, so far as I am capable of judging, at least as much worry in looking after the details of domestic expenditure as there is in the struggle to provide for it. Even children at school suffer from headaches of this nature. A good deal has been heard during the last two or three years about over-pressure in schools, and a great deal of what has been heard has been absurd; there is nevertheless a germ of truth in it, and Dr Batty Tuke has put the matter in its proper light in a lecture delivered before you. We must never overlook the fact that there is no equality in the matter of mental endowment. Brains, like men, naturally fall into classes. The intellect varies greatly even among the children of the same

parents, and what is mere play to one may be a severe task to another. Even when the brain is in every respect satisfactory in itself, it may be rendered useless by deficiency of physical strength. Herbert Spencer says—"The best brain is found of little service if there be not enough vital energy to work it." Regular work for the brain, even in tender years, is good, provided that there are periods of repose, and that the organism, as a whole, is healthy. If the work be injudiciously arranged, or the system be feeble, headaches and languor, loss of appetite and arrest of nutrition herald a general breakdown. In this way exhaustion, as the result of over work, absolute or relative, may be the cause of headache.

But exhaustion may be induced by misdirected activity. Take the case of the young lady who wastes her energies in a series of fashionable engagements. What a prodigious expenditure of activity there is in a modern ball-room! There is a loss of energy in the form of heat from the exposed bust and arms, in addition to the loss through muscular action. Add to this that every movement is hampered by the arts of the dressmaker and shoemaker. A waist which would be in perfect symmetry at 24 inches, is reduced by misguided ingenuity to 18; while the bootmaker attempts to improve upon a comely foot by placing a high heel below the middle of the instep. Consider also that the whirl of excitement begins when most of us are thinking of going to bed; that our young lady, with the endurance of her sex, will sail onwards through the mazy throng until her partner is ready to drop with fatigue, or giddiness, or both, and you will not wonder that she is tired, and has a headache next morning.

The common feature of all these headaches which result from exhaustion, is that they are not distinctly confined to any special part of the head, but have a diffuse and general situation, that they are attended by sleeplessness, irritability, despondency, languor, and debility.

It cannot be too strongly impressed upon everyone that the true remedy for such headaches is rest,—rest if an attack has come on or is impending, and careful regulation of the habits for the future. There must be for those who are bearing the burden and heat of the day in life's battle a careful and systematic arrangement of work and rest, the repose which is best for most of us being a change of occupation.

Habits are only to be acquired in youth, when the organism is easily moulded, and methodical regulation of work and play must at that age be insisted on. Mental and physical health in maturity can only be attained by careful training in early years, and therefore those who have the care of the young should pay scrupulous attention to the education of the body as well as of the mind. "People are beginning to see," Spencer says, "that the first requisite for success in life is to be a good animal." The capabilities of body and mind must be gauged. By judicious arrangement of work and play and sleep, as well as food and clothes and housing, these should be developed to the utmost. With boys education is now a fairly satisfactory process, and efforts are diligently made to find out the inborn tendencies of each. Even in the "good old days," as they are called, some attempt was made to place each son in that position in life for which he seemed best fitted. The brightest youth, for instance, was sent to study law, and the dullest blockhead was destined for the church. But in the case of girls it is now only beginning to be recognised that an attempt should be made to discover their natural gifts, and to pursue an appropriate training in accordance with such endowments. We are beginning to learn that it is worse than useless to waste time over the attempt to learn what are euphemistically termed accomplishments, when there is not the faintest possibility that they can be learned. Many a conscientious and hard-working girl undergoes untold misery at school, and suffers all her life in consequence of failure in her diligent attempts to achieve the impossible.

In connection with school headaches, I may mention that they may be brought on by a blow on the head. When this is the cause of a headache, the origin of the pain may be simply exhaustion or depression of the nervous energy; but in some cases there may be what is known as concussion of the brain, which would fall under a more serious class. I think you will agree with me that a schoolmaster who administers a shock of this kind to the youthful brain is a ruffian, who should be brought to justice. I believe that for a lazy rascal who can learn his lessons and will not do so there is an absolute necessity for corporal punishment of some sort, but it should be applied to some region of the body as far from the head as possible. My own preference is in favour of the old-fashioned "taws" as at once

an effective and safe means of punishment, and from abundant personal experience I can testify that no permanent damage is likely to result from the use of this instrument.

We have further to consider those headaches which are caused by irritation of more or less distant nerves.

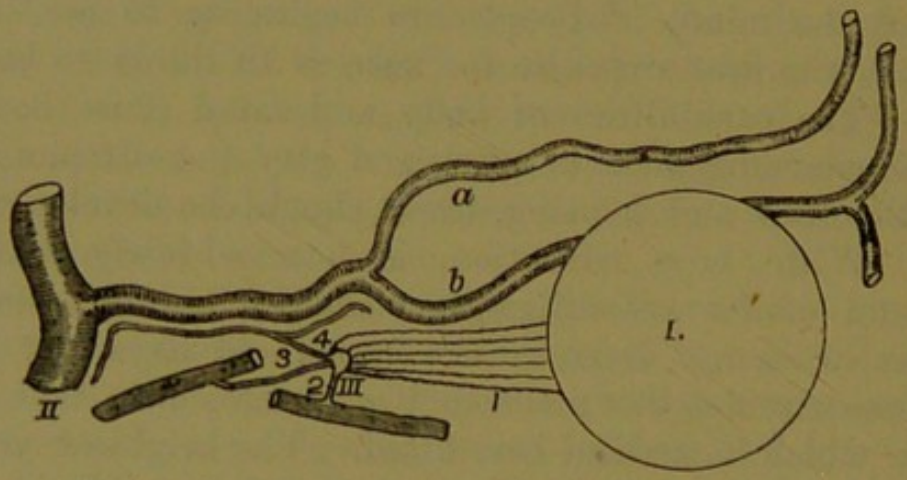

FIG. 3.—Diagram to show the connection between the nerves regulating the accommodation of vision, and the nerves controlling the blood-vessels of the forehead. I. The eyeball. II. The main artery, giving off the branch to the eye, which sub-divides into *a* and *b*, supplying the forehead. The special branches entering the eyeball are omitted to simplify the diagram. III. The nervous nucleus, with—1, branches to the muscle adjusting vision; 2, root from a motive nerve; 3, root from a sensory nerve; and 4, root from the nerve regulating the blood-vessels to the eye, nose, and forehead. When the nerves to the apparatus of accommodation (1) are exhausted, and therefore irritable, the irritation spreads to the other nerves, and by involving those of the blood-vessels (4), it causes a spasm of these vessels. This lessens the supply of blood to the nerves of the forehead, and induces pain in consequence.

Disorders of vision induce headaches which are usually situated over the brows. The cause of these headaches is straining of the mechanism by which the sight is adjusted to different distances. The straining acts in part directly by inducing exhaustion of the nervous arrangements, in part indirectly through local changes of the circulation which widen the area of nervous disturbance, by interfering with the nutrition of sensory nerves, as is shown diagrammatically in Fig. 3. This is a common cause of school headache. If a child is in good health and has average intelligence, any headache which comes on at school is probably caused by some defect of sight, if the sanitary arrangements are perfect. The pain, as I have said, is localised about the forehead, and does not appear until the sight has been used for some time. In such a case the ophthalmic surgeon must be visited, and spectacles provided to correct the errors in vision.

As I shall not have any occasion to refer to headaches in children again this evening, let me say to you, never neglect a head-

ache in any child. It may only be caused by indigestion, or it may be induced by the growth of the second teeth; but, on the other hand, it may herald one of the specific fevers, or be the precursor of some disastrous disease of the brain itself. Whenever a headache in a child does not disappear after a brief rest, let me impress upon you the necessity of sending at once for your doctor.

Diseases of the ear frequently cause headache distinctly confined to the temple and top of the head, accompanied by pain in the ear and disturbances of hearing. Affections of the tonsils often produce headaches in precisely the same situation. Besides this headache there is sometimes also in chronic disease of the middle ear, a feeling of fulness of the head, as if its contents had not sufficient accommodation. Such cases require, of course, treatment of the affections of the ear or throat.

Bad teeth are a fertile source of headaches, as they are also of indigestion; and I am glad to see that Dr Smith is going to teach you something about them. Diseased teeth absorb putrefactive substances, which cause irritation of the nervous supply of the teeth, and this leads to pain in the head in much the same way as in the case of the eyesight. The pain is usually felt over the temples or towards the back of the head. It is generally relieved by a purgative followed by a tonic, but I need hardly say that the radical cure is the best.

In some cases of indigestion headaches seem to be caused in a similar way instead of by blood-changes. No doubt you all know that palpitation of the heart is caused in dyspepsia through irritation of the nervous system, and it is probable that some headaches are caused in an analogous manner.

These nervous headaches would not be induced if the system were in good condition, but when it is feeble or disturbed by any nutritive disorder, the nerves are liable to pain, in accordance with the statement which I made to you that a nerve when ill-nourished is irritable.

Among nervous headaches we have also to consider some which are due to inherent defect in the nervous system itself; but as the disorder is not such as we can by means of our present methods of investigation clearly make out, we are compelled to call them functional as a cloak for our ignorance.

The first class of sufferers which I shall mention is that of

hysterical people. I enter upon this subject with some natural hesitation, for it requires as much circumspection to approach it as to walk on thin ice. The sufferers from this affection, whether of the male or female sex, hate the term I have used, but we cannot allow a false delicacy to prevent our looking fairly at the facts. Typical cases of hysteria, with their interesting pallor, the lustre of their dilated pupils, the pretty flightiness of their manners, are well known to every one. They usually belong to the well-to-do classes, but not invariably so, and very often regard themselves as endowed with gifts of extra sensibility. Their greatest curse is self. They have too little to do, and for sheer lack of employment they frivol their time away in various fashionable forms of dissipation, or cry their eyes out half the night over the misfortunes of fictitious heroes and heroines whose fates are at least as good as their deserts. Dr Clifford Allbutt, of Leeds, thus sums up the characteristics of an hysterical person —"A person of feeble purpose, of limited reason, of foolish impulse, of wanton humours, of irregular or depraved appetites, of indefinite and inconsistent complaints, seeing things as they are not, often fat and lazy, always selfish; or, to take it in a less degree, one capricious, listless, wilful, attractive perhaps, yet having always the chief notes of hysteria—selfishness and feebleness of purpose."

The special features of the headache are that it is confined to the top of the head, and of an intensely acute character, resembling the sensation which might be supposed to be caused by a sharp instrument being driven through the head, whence the name *clavus*, from the Latin word for a nail. Along with this there is the feeling of a ball rolling up the throat, fulness in the region of the stomach, palpitation of the heart without any apparent cause for it, complaints of sleeplessness which cannot be corroborated by the attendants, of want of appetite, "which does not lessen the labours of the cook," and of all kinds of inconsistent sensations.

Now hysteria is a real and most formidable disease, and there is nothing more erroneous than to put down a person suffering from it as a humbug. I find that there is a great tendency, especially among ladies, to utter the expressive word "fiddlesticks" whenever hysteria is mentioned. This, however, is a cruel injustice, and I take this opportunity of protesting against it.

The treatment of such headaches is the treatment of the malady itself—by moral, hygienic, and medicinal remedies. The encouragement of a better frame of mind and a better habit of body by every means at our command. Incidentally, I may observe in passing that the shower bath and electricity do a world of good amongst the methods to be used in cases of this kind.

A totally different class of headaches falling under this division is that affecting nervous people. We may call this the nervous headache, and many persons of both sexes with highly-strung nerves are subject to it. The bulk of the sufferers are, no doubt, women, but there are many feminine men—I use the word in no offensive sense, but simply as an analogous expression to the commonly employed term "masculine women"—there are many feminine men who are also similarly afflicted. There is a very general dislike to the word nervous, but there is no reason for this antipathy, as nervous people are, in many instances, the very salt of the earth. Used in a medical sense, the term simply means that the individual to whom it is applied is delicately adjusted in every way. Frequently endowed with brilliant imagination, subtle penetration, and quick sympathy, they are the master spirits of art and literature. They are capable of self-denial, and, willing to spend and be spent in the performance of their duties, they have endurance enough to struggle on until a task is done, when complete prostration follows.

Let me quote again from Dr Clifford Allbutt, in order to point out for you the difference between this and the hysterical class of affections:—"The neurotic woman"—that is, put in common language, the nervous woman—"is sensitive, zealous, managing, self-forgetful, wearing herself for others; the hysteric, whether languid or impulsive, is purposeless, introspective, and selfish. In the one is defect of endurance, but in the other defect of the higher gifts and dominion of mind."

The nervous person may go on comfortably for a long time if no special strain occurs, but a very slight cause is sometimes sufficient to upset the equilibrium. Even a change in the weather may be enough to do so; and this is not so much to be wondered at, when you think that a fall or rise of one inch of mercury (that is, from about "fair" to "rain") means a great difference in the atmospheric pressure on an average sized man.

Headaches, which we may truly call nervous, are characterised by their sudden onset, their indefinite position, the profound depression and sinking feeling attending them, which often lead to retching or vomiting. They are often called "sick headaches," but this is a misnomer, and the term should be disused altogether.

It is not easy to suggest, in a general way, how such attacks may be avoided or averted. Everything that can increase the tone of the system should be adopted. Regular hours, exercise in the fresh air, and cold bathing should be practised; and those who cannot take a cold bath without shivering after it, will often be able to do so, if after a rapid plunge they step into a basin of hot water.

Lastly, amongst these functional headaches of nervous origin must be mentioned migraine, often called "brow-ague" and "sick headache." These terms are apt to lead to confusion, and should be discarded. Migraine is a distressing affection. The pain is always accurately confined to one side of the head, always associated with temporary disturbances of sight, and usually followed by sickness and prostration. Its causes are little understood, but there is always some spasmodic change in the blood-vessels of the affected side of the head, which probably induces the pain in the nerves. This condition of the vessels probably results from some primary nervous change elsewhere, and the effects all follow each other in a circle.

The treatment of this affection is not very satisfactory, but some drugs, such as the active principle of tea and coffee, appear to control the attacks, while others, such as arsenic, are of use in warding them off. Here, as in the two last classes of headache, the whole system must be improved.

Before leaving the subject I would like to express my conviction that the application of cold water to the head is of very great utility in preventing headaches. The excellent Celsus, whom I have already quoted, says that "nothing is so beneficial to the head as cold water," and I am perfectly sure that the cold douche every morning will be found of great service by bracing up the nervous structures of the head.

Headaches, finally, may be the result of organic disease of the brain itself; but into these, which do not fall under any of the three divisions mentioned above, I cannot enter.