LECTURES ON THE DIAGNOSIS OF EPILEPSY.

Delivered before the Harveian Society.

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LECTURE II.

So far, we have spoken of the type case and of the subtypical cases as if there were paroxysmal affections of consciousness only, or the crude sensations, vertigo and the epigastric warning. Indeed, we may hear of nothing else than affection of consciousness; but often there are decided physical accompaniments, if not always some. Necessarily there is always a physical condition; viz., a discharge of some part of the nervous centres, even if there be cases of epilepsy with loss of consciousness only. I now come to speak of visible or inferable peripheral effects of the central discharge.

Visible effects of the discharge are spasms. Such an effect of it as that the salivary glands secrete in excess is inferred from witnessing flow of saliva, and, perhaps, from hearing swallowing movements. We infer that the bladder contracts from finding that the patient has passed urine. There is a large and important class of inferable effects, from, or rather accompaniments of, the discharges; these are "crude sensations". With regard to all "crude sensations", we can, since, although abnormal, they are psychical states, only translate what the patient tells us into physical conditions. Thus, if a patient say that at the onset of his fits he has "balls of fire" before his eyes, we infer the physical condition of excessive discharge of sensory elements of centres especially representing the retinae. Of course, any sensation, healthy or morbid, is only to be called peripheral in the sense that it is referred to the periphery (epi- or ento-periphery), or that it is, as in vision, considered as in the environment in relation to some part of the periphery.

Here we must pause to remark on several matters. First, we speak of the nature of the epileptic discharge, partly restating in a different way the substance of what was said in the last lecture, when speaking of movements of mastication, etc.

Whenever we speak of discharges in epilepsy, it is to be inferred that nervous discharges in a degree far above normal are meant. There are, of course, nervous discharges in the operations of health. But, in epilepsy, the spasm is plainly the result of an *excessive* discharge; there is a strong development of a great number of movements of parts at once. The crude sensations at the onset of severe fits, "balls of fire", etc., *imply* correlative strong discharges. During excessive discharges of parts of the very highest centres, nothing like normal mental states arise; time is required for consciousness; consciousness ceases during the rapid and excessive discharges of vast numbers of the nervous arrangements, which are the substrata of consciousness. The psychical states arising during an epileptic discharge of the highest centres are only crude sensations, such as vertigo and the epigastric sensation.

There are certain peripheral effects equivalent to spasm. The flow of saliva is equivalent to spasm, being the result, it is supposed, of strong currents along efferent, if we may not say motor, nerves. The stopping or slowing the heart is supposed to be owing to effects produced through the inhibitory fibres of the pneumogastric nerve, efferent although not motor fibres. The effects of epileptic discharge on the circulatory apparatus have not been minutely studied. At the onset of some slight attacks, the pulse stops. A patient not unfrequently tells us that his heart palpitates at the onset; but whether it then goes more slowly, whether the palpitation means intermittence, is hard to determine. Increased frequency of cardiac action, *after a slight fit*, might be ascribed to partial exhaustion of the inhibitory fibres or their centres—a condition analogous to that of centres in epileptic hemiplegia (post-epileptic paralysis significant of exhaustion of centres from the excessive discharge in the prior paroxysms).

It is to be understood that the term Sensation is used as a name for a psychical state, and not used as convertible with active state, or discharge, of sensory nerves or centres.

There are sensations occurring during excitations or discharges of motor centres, as well as during excitations or discharges of sensory centres; thus epileptic vertigo is an abnormal sensation as much as coloured vision is; the former is a crude psychical state occurring during

(not from) excessive discharges of central elements representing retinal elements, the latter a crude sensation occurring during (not from) excessive discharges of central elements representing ocular and perhaps other movements. It will be convenient occasionally to use the terms "motor-sensation" and "sensory-sensation". It is not meant that muscular movement, nascent or actual, is any part of a sensation, nor is it meant that a sensation is a mode of motion of either motor or sensory nervous elements. The expressions are to be taken simply as abbreviations of the expressions "sensation occurring during activity of a motor centre", and "sensation occurring during activity of a sensory centre".

We must not limit the term Sensation to the so-called special sensations—sight, touch, etc. In that expression are included all sensations whose corresponding physical organs are on the periphery. Using mixed anatomical and psychological terms, on the same understanding as the expression motor-sensation is used, these may be called epiperipheral sensations. But there is also the large class of sensations—entoperipheral sensations—called by Lewes Systemic, and by Bain Organic. This division into two classes of normal sensation corresponds to the division to be made later on into two classes of "Crude sensations".

We divide the peripheral effects of epileptic discharges into three rough groups. It must be borne in mind that we are speaking solely of epilepsy proper, and only of slight fits, under this division. (1) Affection of Animal parts; (2) affection of Organic parts. Then under each we consider (a) what we see, viz., spasms or equivalent effects of central discharge; (b) what we infer from the patient's statement about his crude sensations before he loses consciousness.

1. *Affection of Parts serving in Animal Functions.* (a) Visible movements.—The most pronounced of these are stiff or gliding movements of the hands, of the eyes, or of the face, or perhaps of all these parts; that is to say, spasms of those regions of the animal parts having small muscles,* or, in other words, of those parts directly concerned in the most intellectual operations and most voluntary actions. (b) Crude sensations (special senses).—The patient may have prelude stench in the nose, or "balls of fire" before the eyes, or noises in the ear, or numbness of the hands; these we interpret to be owing to central discharge of different sensory elements of the highest centres of the cerebral hemispheres, representing the regions of the body concerned in the several senses named. There is also the motor-sensation vertigo.

2. *Affections of Parts serving in Organic Functions.*—(a) Visible changes from spasm or effects equivalent to spasm. The face and the lips may turn pale, or become red and then pale. There may be a flow of saliva; the pulse may stop; there may be eructation. (b) Crude sensations (systemic) of suffocation, of dying, of "sinking into the ground", nausea, the epigastric sensation already mentioned, chilliness, warmth, etc.

3. *Common to both Animal and Organic.*—Then, as a third division, we must consider affections of respiration. Respiration belongs, or at any rate respiratory movements belong, both to the animal and to the organic group; for we not only breathe to aerate the blood (organic function), but we fix the chest-walls after a full inspiration, possibly by closure of the glottis in "effort", as, for example, in lifting a weight (animal function).

It is a common thing for there to be entire suspension of respiration with but little true spasm of the face and limbs. The feeling of suffocation in an early stage of epileptic fits is probably owing to the beginning of this suspension.

Now let us state some facts of scientific bearing, and in such a way as to bring us to a clearer consideration of the empirical value of certain symptoms in the diagnosis of slight seizures. We gave as one of the things distinguishing the paroxysm of epilepsy proper from the epileptiform seizure that the former began by loss of consciousness, or that loss of consciousness was nearly the first thing. In other words, these are the cases in which there is no warning, or in which it is short. Now, such a mode of beginning implies that the correlative physical condition, the excessive discharge, begins in the highest cerebral centres; for these, of course, are the centres engaged during our highest and latest mental states—only another way of saying engaged during our consciousness. For we have not got a consciousness and latest and highest mental states; we have only two names for one thing. Moreover, if analytically we speak of our highest mental states under the names of will, memory, emotion, and reason, we are only giving names to different

* It is significant that the rule is that all sorts of epileptic and epileptiform convulsions begin in small muscles, or in muscles whose ordinary movements require little energy for the displacements they have to effect. I have advanced the hypothesis that small muscles are represented in the cerebrum by small cells, or rather that movements of parts which require little energy for the displacements they have to effect are represented by small cells. As the researches of Bevan Lewis show, this is not altogether an hypothesis in so far as "centres" in Ferrier's region are concerned; "centres", chiefly representing "small movements", are those which have fewest large cells. This matter has wide bearings.

aspects of consciousness. Thus there are not separate centres for the will, nor for memory, nor for the emotions; these arise simultaneously during activity of the highest cerebral centres; that is, they necessarily all arise when consciousness arises, being only names for different aspects of consciousness itself. The term substrata of consciousness (in detail substrata of the simultaneously arising states, will, memory, etc.) is only another name for highest and latest developed centres (racially and individually).

The following are equivalent expressions.

As to the Paroxysms: 1. The fit begins with loss of consciousness; 2. The fit begins without a warning.

As to the Centres: 3. The discharge begins in the highest cerebral centres; 4. The discharge begins in the substrata of consciousness; 5. The discharge begins in the centres engaged during the fourfold state: will, memory, reason, and emotion; 6. The discharge begins in centres which especially contain substrata of numerous tactual and visual images, words, emotions, etc.; 7. The discharge begins in parts which especially represent movements in which small muscles are concerned.

With obvious modifications, the statements apply to cases in which the loss of consciousness quickly follows the onset—quickly follows a warning.

Thus we see that not only the animal parts, but the organic parts also, are the fields of symptoms from epileptic discharges; and, as the paroxysms are such as begin with loss of consciousness, we declare them to result from discharge of the highest centres. This is only another way of saying that the highest centres represent the parts concerned, both organic and animal; not the face and limbs only, but the heart, salivary glands, and stomach. The epileptic discharge is an "experiment" showing that they contain nervous arrangements representing these parts. When we bear in mind that emotional manifestations are activities of deeply organic parts as well as of animal parts, we see that psychology is in absolute harmony with the facts of epilepsy proper; for emotion, like memory, reason, and will, the remaining other sides of conscious states, begins to arise during activity of our highest cerebral centres. So now we add to the above seven statements the following equivalent statement.

8. The discharge begins in a part representing both organic and animal parts.

Let us for a moment consider the facts of severe fits. In these cases, both animal and organic parts are affected by the severe discharge; but not only the small muscles, but all the visible muscles of the body, are affected. Moreover, some organic parts are affected; we cannot say all. The following statement is hypothetical; it is only supposed to be equivalent to the others.

9. The discharge begins in centres representing the whole organism.

In these lectures, we deal with cases in which there is little more than loss of consciousness, in which the peripheral effects are slight. Now, it is a singular thing, at first glance, that it is in these very cases that the slight symptoms we have are not only those referable to animal parts, but also symptoms referable to organic parts, as pallor of the face, flow of saliva, slowing and stoppage of the pulse. With either set of symptoms there may be stoppage of respiration, with little spasm of the limbs. Do not these facts show that organic as well as animal parts of the body are represented in the cerebrum? Do not they show that they are both represented in the very highest of the cerebral centres? For the seizures begin by discharge of these highest centres. Besides, how would anyone set about explaining what occurs physically during the emotional manifestations of fear, joy, etc., unless he assumed that the organic parts are represented in the highest centres? And everybody does tacitly assume it in ordinary discourse. To say that "he is frightened" implies it; for what represents the "he" or the "ego" of ever passing moment but the then highest consciousness, and what should be the substrata of highest consciousness, except the highest nervous centres? When we say anyone is frightened, we are asserting that there are occurring physical manifestations from discharges of the highest centres. The facts of emotional manifestations are indeed very striking. To take the case of fear, and to speak only of what can be seen or inferred from involvement of the organic parts, we find that the heart is quickened, the respiration is hurried, the mouth is dry, there is increased perspiration, the face is pale, there may be intestinal evacuations, and in anxiety (fear spread out thin) there is increased renal secretion or increased flow of the watery elements. The criticism that these are only "caused by emotion" is invalid. A psychical state cannot cause anything physical; an emotion is not the cause, but the psychical accompaniment, of what are physically nervous changes, and the central changes are those causing, directly or indirectly, disturbances of the organs named as well as of animal parts omitted from our catalogue. And, if it be possible for a person to feel afraid only, in the

sense of no external manifestations appearing, then the only difference is that the central changes are slight, or are antagonised by others; that is to say, they are limited to the highest nervous centres.

A slight digression to facts of other brain-disease is justifiable. Epilepsy cannot be understood if it be not regarded in relation to all other cerebral diseases. This digression will lead round about to a practical consideration of certain important matters connected with the diagnosis of epilepsy. Although a digression from our principal topic—epilepsy—it is a continuation of that part of our subject which is to show that the cerebral centres represent organic as well as animal parts.

The abovementioned facts, showing implication of organic parts in epilepsy, find their parallel in the occurrence during meningitis and some other acute primary brain-diseases of vomiting, constipation (occasionally volvulus), irregularity of pulse, and respiration. These cases show exactly as slight cases of epilepsy do that organic parts are repeated in the organ of mind. It is exceedingly important to note for practical purposes that from disease of "the organ of mind" we have such peripheral physical symptoms; the more so that, whilst they are of great value in the diagnosis of acute primary disease of the brain, positive mental symptoms (delirium, etc.) are of little value—none I think—in diagnosis of such acute primary disease.

If it were admitted that the "organ of mind" was, like lower centres, representative of nothing else than impressions and movements, it would save us from many blunders. Surely, there is nothing strange, *a priori*, in supposing that the higher and highest cerebral centres have the same fundamental kind of constitution as the lower centres in the pons, medulla oblongata, and spinal cord. And, *a posteriori*, we find that very frequently disease of the cerebrum does cause motor or sensory symptoms, or some of both: we find that with tumours in the middle cerebral centres there are definite partial convulsions, or convulsions becoming universal; we find that faradaic or galvanic stimulation of those centres produces definite movements. But some of those who admit that Hitzig and Ferrier's regions contain movement centres, still think the rest of the cerebrum is for mind. But there is no incongruity whatever in holding this opinion, and in holding also that the rest of the cerebrum is made up of nervous arrangements representing impressions and movements. To hold that "the organ of mind" is made up of nervous arrangements representing impressions and movements seems strange when the two little words "organ of" are read over so that one is misunderstood to mean that the "mind is made up of nervous arrangements representing impressions and movements." All that is said is that the substrata of mind have this sort of constitution. Hence I think, as others do, that the parts beyond Hitzig and Ferrier's centres are "for mind"; in the sense that they contain the substrata of highest mental states. But this belief leaves me perfectly free to hold the opinion that these substrata are nervous arrangements for impressions and movements.

These remarks are not of mere theoretical interest; from not admitting this kind of constitution of the cerebrum, acute brain-disease in its earliest stages is nearly always put down to fault in some non-cerebral organ, whose activity is particularly disturbed, directly or indirectly, by disease in that part of the brain which represents that organ. Effects are taken as causes. Is not migraine frequently put down to digestive derangement? Are not cases of tubercular meningitis and cerebral tumour in their earliest stages constantly ascribed to stomach and liver derangements? Would these mistakes be so common if it were recognised that the liver and stomach, as well as the hand and the foot, were represented in the organ of mind?

Now, to come back to epilepsy. Because a patient's pulse is irregular during or just after an epileptic fit, the fit, supposing it be slight, is put down to cardiac affection, even when the patient is suddenly seized when sitting reading or at dinner, turns deadly pale, and yet does not fall. Again, because a patient's fits begin with an epigastric sensation, described as nausea, or if there be eructation, it is not at all uncommon for the attacks to be ascribed to indigestion, notwithstanding that these stomach-symptoms occur paroxysmally, and in face of the facts that ordinarily the patient may eat a big dinner and forget it, have after it no pain, no flatulence, no feeling of distension, no nausea, but go on digesting it unconsciously. Hence, if such a case is to be looked on as dyspepsia, it is paroxysmal dyspepsia causing loss of consciousness. Supposing the patient had dyspepsia, and supposing that he was invariably much more dyspeptic just before each fit occurred, we ought to wonder why dyspepsia "caused" loss of consciousness, and caused it suddenly, and caused it transitorily, when there are scores of cases of aggravated dyspepsia without much complication. Trousseau mentions a case in which attacks of violent giddiness, with deadly pallor, occurred after a sensation of pressure at the pit of the stomach, soon followed by vomiting. These attacks were put down to dyspepsia. The boy's father and his medical attendant refused to

believe in Trousseau's diagnosis of epilepsy; the sequel of the case showed Trousseau to be right. Trousseau says, of what he calls a "visceral aura", that it escapes the observation of the physician all the more easily from its simulating other affections in a numerous class of cases. The "visceral aura", or "warning" of an epileptic fit, is nothing more than the first effect of the central discharge; it is some change produced in the viscus, or it is some sensation referred to the viscus, the sensation arising with the central discharge. In this way of regarding the term, Trousseau's meaning is, that the disturbance is supposed to originate in the viscus, whereas it is produced there by the central discharge; the discharge being of a part which especially represents that viscus. Herpin asks: "Is there anything more strange in the tonic convulsion beginning in the muscles of the digestive canal than in its beginning in those of the hand and foot?" Herpin's question is very pertinent, since, as facial pallor shows, spasm in epilepsy frequently does begin, or occurs very early in, the muscles (muscular coats) of equally organic parts (facial arteries). Here an inconsistency may be pointed out. Some organic symptoms are admitted by everybody to result from the central discharges, as pallor of the face, flow of saliva; some, as eructation, are looked upon as not resulting from it, but as causing the other symptom with which they occur.

To resume; cases of meningitis, cerebral tumour, undoubted cases of epilepsy, show that the organic or visceral parts are disturbed by cerebral disease in many cases in which visceral disease is supposed to disturb the brain. Two things are plain to the laity: that digestion influences the brain, and that the brain influences the digestion; a heavy meal produces in some people sluggishness of mind and depression of spirits; joy or grief takes away the appetite.

There is still another way of regarding the relation of visceral states to the organ of mind. It is well known that visceral diseases, or slightly abnormal visceral conditions, influence the mind (the brain). We have the so-called *spes phthisica*, and there is the melancholy of abdominal disease. Milner Fothergill has stated the relations of affections of different thoracic and abdominal organs to different mental conditions with great clearness. From such considerations we pass on to a clearer view of the relations of mental (cerebral) to organic states.

We may fairly assume that the viscera and all other parts of the organism are doubly connected with the cerebral centres, even with the highest of them. There are nerve-fibres efferent downwards from centres to part of body; nerve-fibres afferent upwards from part of body to centres. Thus there is harmonious action, consent, betwixt the part and the centre; and when one gets out of order the other suffers. If, to speak figuratively, the brain (as in an epileptic fit) fix the chest, the chest crams or tries to cram the brain with blood. If the brain stop or retard the heart, as in some cases of *le petit mal*, the heart won't supply the brain with blood. It is "You bother me, I'll bother you". There is a multiplication of effects. Hence, a study of the several "visceral auras" is of great practical moment. I doubt not that when there is a discharging lesion in a cerebral centre representing especially the stomach, when the patient at the outset of his seizure has a sensation of nausea, that centre being in an unstable condition, is easily worried into discharging when the digestion is over-worked. Indeed, for more reasons than this, attention to the diet of epileptics is one of the most important things in their treatment, as Dr. Paget of Cambridge long ago insisted.

There are two other things referable to internal organs, which occur in slight cases, and more frequently in slight cases than in severe ones, viz., passing urine and fæces. It may be doubted whether these are owing to epileptic spasm; they may occur after the fit, and be due to "loss of control". They occur after death. However, be these two things direct or indirect results of the paroxysm, they occur at any rate practically with the other symptoms. They are exceedingly valuable helps to the diagnosis of epilepsy, especially in its slighter forms. I say in the slighter forms, for it is said that the urinary and fæcal discharges occur most often, as Herpin long ago asserted, in the slight attacks. Passage of urine is most common, and is a valuable help to diagnosis. If a child, but especially if an adult, pass urine in bed, epilepsy is one of the things to be carefully investigated for. If passage of urine occur in a so-called "faint", or in a "giddy attack" in the daytime, there is probably epilepsy—almost certainly.

I will now make some general remarks on the diagnosis of epilepsy, and remark briefly on the question of pathology.

Perhaps one reason why, on the occurrence of a few slight attacks, there is a hesitation in carrying the evidence to its logical conclusion is, that the patient may, to all appearance, be in first-rate health. Unfortunately this goes, so far as we can yet tell, for nothing at all against the diagnosis of epilepsy. I submit that, before the first attack, however slight, something must have been going wrong in the nervous centres. I take it for granted that every one admits every sort of

epilepsy to depend on discharge of highly unstable nerve-cells. The nervous elements must have become unstable before the first sudden "explosion"; a gun must be charged before it can be discharged. Suppose a person, feeling well and in no way discoverably out of health, has suddenly one morning, when reading a book, a violent convulsion with loss of consciousness. Surely we must admit that some part of his nervous system had been changed before that unlucky morning; the nerve-cells do not become suddenly unstable, and then suddenly discharge. Such a case is a startling one; but we must, I submit, make the like supposition in the case of a first slight fit, however slight it may be.

Possibly another reason for hesitation in diagnosing epilepsy, is the absence of anything likely to be a cause of so serious a thing. The patient is well, and has had a healthy ordinary life. But we are not always content to say of a case of epilepsy that we do not know the cause. Thus there is a tendency to fall back on the nearest most striking event, and to explain away the symptoms by fright, by temporary dyspepsia, by overwork, and so forth. We have not yet discovered the cause of epilepsy proper in any sense of the word "cause". Nor is there any morbid anatomy of it. We note carefully the facts of the above and other so-called causes, but until we find some morbid anatomy, we are not justified in anything more than stating, as an hypothesis, that epileptic fits occurred from this or that condition or circumstance. And when we have found the morbid anatomy, we shall then have to discover how fright, dyspepsia, etc., produce the unstable condition of nerve-cells, on the discharge of which the first and every subsequent fit depend. The hypothesis is stated that such causes as fright are simply "exciting causes" of the first discharge of nerve-cells which have, by prior pathological processes, reached a high degree of instability.

As regarding pathology, I would repeat that there is a negative pathology; epilepsy proper, slight or severe, is rarely owing to gross organic disease, whilst epileptiform seizures frequently are. The changes in epilepsy proper are minute, as is evident enough by their having never been found. When opportunity serves, we ought to look into the state of each tissue of the part. For here comes the great question, Is the change primarily arterial and secondarily nervous; or is it a change beginning first of all in the nerve-cell? There are many nervous diseases which are not nervous at all in the sense that the nervous elements are first to go wrong. In most cases of nervous diseases of which there is an anatomy, the nervous elements are quite innocent; they suffer because their arteries are blocked up or break, because tumours grow in their connective tissue, etc. This leads to the question of hereditariness, and thus once more to the question of diagnosis of epilepsy.

It is not denied that epilepsy is a disease of some nervous organ; whatever view anyone takes of the seat of epilepsy, he believes some nervous centre or centres to be affected. But now comes the critical question. There being several ingredients in any nervous organ, which one is primarily affected? That the nerve-cells are changed no one denies; but, repeating the above question in two questions, we ask, Does the change begin in the nerve-cells of the centre, or do these suffer secondarily from a change beginning in some non-nervous element of the centres? The answer can only be hypothetical in cases of epilepsy proper, for the simple reason that as yet there is no morbid anatomy of epilepsy proper. Let us see how the two questions stand with regard to current notions of inheritance of nervous diseases.

Supposing there were nervous diseases in many of the patient's near blood-relatives, we must be careful how we interpret this evidence, as showing that his epilepsy is a nervous affection. We must consider what sort of pathology these "nervous diseases" have; are they nervous in the sense that the morbid process begins in the true nervous elements of the centres diseased, or only in the sense that it begins in the non-nervous element, and leads to damage of the true nervous elements? The fact that his relatives had hemiplegia or apoplexy from cerebral hæmorrhage, is simply no evidence that he inherits a disease of the nervous system in the sense that the changes begin in the nervous elements of nervous organs, for the very plain reason that the pathological processes causing paralysis and apoplexy are of a non-nervous kind; if they have a bearing, as I think they have, they point unmistakably to arterial or cardiac changes. But then the nervous affections in the epileptic's family may be such as chorea, neuralgia, migraine, or epilepsy proper. Since nothing is decided as to the pathology of any one of these affections, we cannot possibly say that they point to an inheritance of epilepsy, or tendency thereto, in the sense that they point to changes *beginning* in nervous elements. I should not make these remarks were they not to lead to a practical inquiry. The hypothesis in possession is that epilepsy is owing to changes beginning in the nervous elements of nervous organs, and it is supposed to be supported by the

fact that there are often in the patient's family persons who have that or some other neurosis; that is, some other nervous affection of which there is no morbid anatomy. Why is it that we speak with most confidence of the inheritance and interchangeability of those very diseases of which there is no morbid anatomy? The occurrence of these neuroses cannot be adduced as evidence that epilepsy is a disease primarily nervous. I wish to put forward, again, another hypothesis; viz., that the cells suffer secondarily, as a consequence of arterial disease; that there is thrombosis or embolism of small arteries in most cases of epilepsy proper. I have held this opinion since 1864, as regards those epileptiform seizures in which there were no signs of gross organic disease. It first occurred to me on finding epileptiform seizures in patients who had valvular disease of the heart. I have since applied it to epilepsy proper. It may be said, "Your statement is only an hypothesis". So is any other view which can be taken of a disease of which there is no morbid anatomy.

REPORT ON THE ATTACK OF DIPHTHERIA IN THE GRAND DUCAL FAMILY OF HESSE-DARMSTADT.*

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II.—THE CAUSATION OF THE OUTBREAK.

HAVING spoken of the previous throat-affections of the members of the Grand Ducal family during the last four years, I now proceed to some remarks on the etiology of the outbreak of diphtheria.

Although Princess Victoria has been good enough to write down for me the names of all the persons with whom she had spoken on the days preceding the outbreak of the disease, I have not succeeded up to the present in finding that any of these persons or their relations had been ill. However, their number is so considerable, and my time so pressed in consequence of professional duties, that it has not been possible up to the present to carry out these investigations in such a way as I should have wished.

Professor Oertel having mentioned, in the JOURNAL for January 11th, a series of facts which militate against the idea of an autochthonous origin of the epidemic, I will now simply refer to his remarks without repeating them.

The hypothesis that Princess Victoria was infected by a slight case has become still more probable to my mind, in consequence of continued investigations. It does not yet appear to be generally known in the profession that diphtheria sometimes appears in so slight a form that the patients suffering from the affection do not feel themselves really ill, but merely indisposed; and that, consequently, they have no occasion to interrupt their usual occupations. I therefore would like to suggest that such cases, which generally escape medical observation, should be published, if some fortunate accident should afford the opportunity of recording them. It might be interesting, perhaps, to learn that I had the opportunity of observing here two such slight cases during and shortly after the epidemic in the Grand Ducal family, the patients not having had any intercourse with the New Palace. On November 27th, 1878, I was called to see a lady who was suffering from "splitting" headache. I could not, however, see her before the morning of the next day. Complaining very much about her headache, she mentioned, merely by the way, that there was a little discomfort in the throat during deglutition. The palatal arches, tonsils, and uvula were greatly congested, but only a little swollen. There was no fever. On repeated examination in the evening of the same day, there was no change to be detected. On the next day, I was assured that "the throat was all right". Examination revealed, however, that the tip of the uvula was covered with a very well developed diphtheritic membrane. This was very small indeed on the anterior part of the uvula (about one millimètre in breadth). I succeeded, however, in turning up the uvula with a spatula, and discovered that the membrane extended two millimètres upwards on the posterior side. In the evening, I again examined the throat. The membrane had extended two millimètres further up posteriorly, but had not changed otherwise. On the morning of the next day, not a trace of this affection was to be seen; the uvula and all the other parts had regained their normal appearance. If this lady had not had the headache, she would not have sent for me, and none of the prophylactic measures would have been taken, which I ordered at once in order to protect those who were about her.

On December 22nd, a cook asked me to examine her throat, because she felt some pain in deglutition. I could not see anything abnormal.

On the 24th, I was asked by her master to examine her again, because the throat had become more sore. I found the patient in bed with slight fever. There were two well-developed diphtheritic membranes on both tonsils, each about one centimètre in extent. On the following day, these membranes had completely disappeared; the tonsils were still greatly swollen and congested; their surfaces had an apparently normal condition. In order to avoid infection, the cook was removed to the hospital, and the physician in charge was at the same time told of the appearances observed on the previous day. Without this communication, a correct diagnosis would have been impossible; the patient would not have been isolated, but would have been put in one of the general wards together with other patients.

In another instance observed in 1877, the infection of a person through a very slight case could not be prevented, in spite of the patient's isolation. On June 5th, 1877, I found in a boy aged 7 a diphtheritic membrane, about half a centimètre in diameter, on one tonsil; at the same time, there was a very slight degree of fever. On the morning of the next day, this membrane had completely disappeared, the boy being quite free from fever and well in all respects. In the afternoon, I was called in again by the mother, and now found membranes on both tonsils; on one of them occupying a space about a centimètre in diameter, whilst the other was a little smaller. There was a higher temperature than on the previous day. Three days later, these membranes had vanished entirely; there were no other symptoms of disease. Nevertheless, the boy remained isolated up to June 15th, i.e., up to the tenth day after his falling ill. A female servant, who had been separated during the entire period from the patient, cleaned the sick-room on the 15th, and afterwards slept in the same. Five days later, she fell ill with headache. On June 21st, I found diphtheritic membranes on both tonsils, extending on the next day over the palatal arches and the uvula. There was at the same time high fever for two days. Cure was effected after five days. By a fortunate accident, I was also enabled to fix with certainty the period of incubation in the case of the little boy who had infected the servant. It had lasted nine days. The boy had, on May 26th, played with another who became a patient of mine on May 27th. It was a case of typical diphtheria, with swelling of the submaxillary glands and fever lasting eight days.

I have communicated these cases fully, because they appear to me to be suitable contributions towards the explanation of the origin of diphtheria. I believe that more importance is to be attributed to the propagation of this disease by slight cases than has been done up to the present by the majority of physicians.

In order to characterise the intensity of the epidemic in the Grand Ducal family, I must state at once that, in all cases without exception, there was considerable swelling of the cervical lymphatics. In the case of Princess Alice, in which the swelling was less intense than in the other patients, there were tumefactions of the glands at the angle of the jaw on both sides, attaining the size of a walnut.

Further details of single cases of the epidemic, especially regarding the course in so far the latter has not already been described by Professor Oertel, I intend to communicate in a subsequent article.

THE MISLEADING EFFECTS OF ATTENTION IN CASES OF FACIAL NEURALGIA FROM DENTAL IRRITATION.

By A. STEWART, F.R.C.S.E.,

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DR. CARPENTER's contribution, "The Effects of Attention on the Bodily Organs", in the JOURNAL of December 14th, Dr. A. Hughes Bennett's test-case in that of October 12th, and Dr. Donkin's valuable paper (October 26th), have probably convinced most readers that the effects of metal plaques, magnets, and solenoids, as observed by Charcot on hystero-epileptics at the Salpêtrière, may be regarded as what I think may be called *hysterical facts*—unreliable.

The doings at the Salpêtrière are so fully reported in the above noted and other recent numbers of the JOURNAL, that its readers are fortunately in early possession of sufficient evidence on both sides to determine their judgment; but they would do well, I think, in addition, to peruse Dr. Carpenter's volume on Mesmerism, Spiritualism, etc. If it be found that Charcot, Burg, and others, have mistaken mental for physical results, at any rate medical and surgical practice will have benefited by the prominence given to "attention" as an *ignis fatuus* in diagnosis that may beguile.

It has not been left out of consideration by careful observers, as the following extract from Holmes's *System of Surgery*, vol. iv, page 73, article "Diseases of the Joints", by Mr. Athol A. Johnstone, shows.