

HUMAN BEHAVIOUR REACTIONS TO ORGANIC CEREBRAL DISEASE.

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DIFFICULTY occurs at times in the diagnostic differentiation between the manifestations of organic cerebral disease and those of hysteria, particularly in patients who suffer from symptoms which are largely subjective in nature, and which are not accompanied by physical signs. An attempt is made in this paper to discuss behaviour reactions which are characteristic of organic cerebral disease, and which, if present, exclude the possibility of the disease being "hysterical" in nature.

GENERAL OBSERVATIONS.

In his book, *The Organism* (1939), Goldstein has described at length the behaviour of individuals affected by organic cerebral disease. This behaviour is aimed at preserving integrity in body and mind, and continuing as far as possible to live a normal life as the individual has previously known it. Goldstein demonstrates that a human organism attempts to preserve itself as an intact "whole" even when attacked by organic disease, to which it reacts by specific behaviour. It is suggested here that these behaviour reactions, which will later be defined, are entirely characteristic of organic disease as distinct from the conditions which are called "hysteria," and when they occur they are as significant of the presence of an organic lesion as are the generally accepted physical signs. The hysteric, in marked contrast to the organically diseased individual, does not demonstrate this behaviour. There is a tendency, or a willingness, on the part of the hysteric to dissociate, to disintegrate. He dissociates himself from his disease, or from the affected part of his body. The organically diseased patient attempts to maintain integrity by conscious or unconscious efforts. His behaviour is aimed at preserving normal functions even when he has no insight into his condition. A human individual develops to adult life with the ability to appreciate or perceive a certain range of sensations, and to perform a certain range of specific movements. His world is constructed within the framework of these sensations and movements. When organic disease causes a disturbance in the appreciation of sensations or the performance of movements, he nevertheless makes efforts to adhere to the framework, and to relate even disorganized functions to the original pattern. The hysteric tends to regard his symptoms as outside himself, and makes little attempt to relate them to the framework.

Care should be taken to assess whether an individual who demonstrates behaviour which appears "hysterical" possesses a "hysterical personality" or not. An individual with a "hysterical personality"—that is, one who is always liable to react to stress with hysterical symptoms—may appear grossly hysterical under the impact of an organic lesion, making diagnosis extremely difficult. An example of this is the patient J. K— (Dr. Critchley's case, Nat. Hosp. No. 27743), who suffered from hypertension with recurrent cerebral thromboses. On one occasion a thrombosis occurred in the right posterior cerebral artery. The patient complained of total blindness. His vision, however, improved considerably during the next few days, and on examination he was found to be suffering from a left homonymous hemianopia. It is possible that complete blindness was present during the first few days on account of the phenomenon known as diaschisis. The patient's behaviour was, however, so theatrical that hysteria seemed the most likely diagnosis. He peered cautiously around him, blinking his eyelids furiously, and spoke in quavering, high-pitched tones. He made curious gestures with his hands. This mime disappeared as his condition improved. Even while it was present he demonstrated behaviour characteristic of organic cerebral disease. This behaviour will now be described.

I. *Mood.*

The patient's mood, or affect, depends upon various factors—his desire to appear normal to others, his own reaction to his disability, his desire to remain normal

within himself, and his previous personality. If he has no insight into his condition he may insist that nothing at all is wrong with him, and attempt to continue to lead the life which he has previously known. Even when insight is preserved, he may appear casual, making light of his symptoms, unwilling to face the fact that his mind and body have become disordered. He may therefore present the superficial semblance of indifference which is classically associated with hysteria. Questioning and examination will generally reveal, however, an underlying anxiety or depression. The patient may be reluctant to admit his disabilities, in distinct contrast to the hysteric who is glad to make the most of his, which serve a useful purpose in his life. Organic disease may cause symptoms so abnormal as to be confusing, alarming, or even terrifying to the patient. He is afraid to discuss them, partly because he feels that to confess them is to admit disease, and partly because he fears that he would be considered out of his mind if he described them. The hysteric, on the other hand, is at ease with the most strange symptoms.

Organic disease may sometimes give rise to intense melancholia whether the patient has insight into his condition or not. Patients with disabling organic disease may of course preserve insight, in which case the depression may be called reactive. Others, however, in whom insight is lacking, may suffer from severe depression which seems to be determined by the disturbing effects of the lesion on cerebral function. Two depressed patients suffering from the effects of cerebral tumours were recently admitted to the National Hospital under the care of Dr. Critchley. The first, H. S— (Nat. Hosp. No. 34,673), had a glioma in the right parietal region. The second, A. H— (Nat. Hosp. No. 36,459), had a large glioma in the left fronto-parietal region of the brain. The patients were aged 55 and 56 years respectively. Both patients had previously possessed cheerful, good-natured personalities. Neither had shown tendencies to obsessional behaviour, or symptoms of tension or anxiety. Neither of them had ever suffered from a previous attack of depression, nor was there a family history of any kind of mental illness. The first patient, H. S—, preserved partial insight into his condition, and as his illness grew worse his depression increased. The other patient, however, had little or no insight. Depression may therefore be regarded as one of the effects of organic cerebral disease. Organic disease may also cause a patient to appear fatuous, as ~~may~~ occur with lesions which affect the frontal cortex, or he may seem excessively genial, or aggressive, or over-obliging or over-talkative. On the other hand, ~~the~~ disease may sometimes cause the patient to be completely silent and withdrawn. These moods are partly the result of the patient's desire to conceal his disabilities and seem normal. The pretence of normality continues until he is asked to perform some task which would expose his disability. Even if he has no insight, when he senses this exposure, the mood of the patient changes. A perceptible tension develops. He becomes restless and uneasy. If he is finally forced by circumstances or by the doctor to become aware of, and admit, his disability, ~~the~~ "catastrophic reaction" is likely to result.

II. *The Catastrophic Reaction.*

This is a very sudden, overwhelming and extreme distress, generally accompanied by weeping and signs of intense despair. It is a highly characteristic feature of organic disease. It occurs, as has been stated above, when the patient is made acutely aware of his defects. The reaction of distress may last for several minutes and recur at frequent intervals. It is the very antithesis of hysterical indifference, or benign acceptance of disease. It is as a rule possible to perceive the increasing anxiety of the patient during examination, if the catastrophic reaction is impending, and it is often necessary to employ subtle tactics and reassurance in order to prevent the patient's emotional breakdown. The patient will go to great lengths to avoid the catastrophic reaction, and much of his behaviour is directed towards this end. He protects himself from it by—

- (a) Orderliness.
- (b) Trick movements and ingenious manoeuvres.
- (c) Avoiding situations which would expose his disability.
- (d) Using other senses to take the place of the affected ones.
- (e) Finding excuses and seemingly plausible false reasons for failures.

(a) *Orderliness.*—The patient will often go to great pains to develop a system of routine and order in his way of living, and he may keep his possessions scrupulously

tidy. This orderly manner of living makes it easier for him to maintain a normal existence, lessens the burden on his memory and permits him to perform the same limited functions day after day. In addition to this fact, there seems to be a compulsive, almost unconsciously determined desire for order in the patient with organic disease of the cerebral cortex. Carried to its limits, the process becomes a desire or need to perform simple, isolated functions, and to deal with only "one thing at a time." The patient is unable to cope with several matters at once. He is unable to cope with several sensations at once. He chooses the most powerful stimuli and neglects the others. He becomes confused and unhappy when multiple stimuli assail him. An example of this is provided by a patient, Mrs. I. B— (Dr. Critchley's case, Nat. Hosp. No. 38299). This patient suffered from a left homonymous hemianopia and spatial disorientation as the result of a lesion in the right cerebral cortex. She complained that everything appeared confused and "unpleasant." It was noticed that she constantly placed her hands over her face in such a way as to restrict her field of vision even further. This was, in fact, an attempt to eliminate as many visual stimuli as possible except those from single objects directly in front of her. When she was asked why she placed her hands in this position, she replied that to look at "many things at once" gave her a very unpleasant feeling and impression. She said that she hated to receive from her friends large bunches of flowers or quantities of fruits. She said they "upset her terribly, although she couldn't understand why." She had told her husband to bring her only one or two fruits at a time and two or three flowers. These small quantities were to be seen at her bedside. When she was shown a tray on which many small articles were jumbled, she looked at them and said she felt exceedingly "upset" by them—they gave her the same unpleasant impression. She asked if she was permitted to arrange them and promptly tidied them into little heaps—keys in one heap, square objects in another, long objects (such as a pencil, pen and nail file) in another, and so on. When she had finished she said she "felt much better about them," and she could bear to look at them. Previously, to look at them had required an effort. This passionate craving for orderliness could be seen in much of her behaviour, and her few possessions were kept fanatically tidy.

The inability to deal with more than one matter or perception at a time can be easily observed during the examination of organically diseased patients.

(b) *Trick movements and ingenious manoeuvres.*—If a disability is present which impairs the sensation and movement of a limb, the patient will find means to continue normal activities by means of trick movements, or complicated round-about actions of the healthy limbs. These manoeuvres are often comical or sad to watch, especially when the patient is not aware that he is being observed. They are very characteristic of organic disease. A patient will often practise in private some test at which he has failed during examination. He may find some way of circumventing his disability. For example, if a patient is spatially disorientated, he may learn to find his way about by placing brightly coloured or conspicuous objects in key positions about the home or ward. The patient, Mrs. B—, described above, always placed her bed-jacket carefully across the foot of her bed when she left it to go to the bathroom, so that she would recognize the bed on her return. As an additional safeguard she counted and memorized the number of beds on either side of hers along the ward, and could therefore calculate which was her own.

(c) *The avoidance of situations which would expose the disability.*—The patient will also protect himself from the "catastrophic reaction" by avoiding tasks which he is unable to accomplish on account of his disability. This avoidance may be motivated at a level below consciousness. For instance, a patient (F. D. P—, Nat. Hosp. No. 17289, Dr. Kremer's case) suffering from acquired auditory agnosia or inability to understand the meaning of sounds, although she could talk perfectly well, took great care never to ask a question during conversation. She always kept up a running stream of talk, thus preventing others from questioning her or making remarks incomprehensible to her. If forced to give a reply, she would say "Oh yes," rather absently, or make a vague murmur, and then immediately start off on a subject of her own, and she was thus able to conceal her defect. It was only after some time that strangers realized with astonishment that she understood not a single word of what was said to her. Mrs. B—, the patient mentioned above, who was spatially disorientated, refused point blank to make even the slightest attempt at drawing a map when asked to do so, and burst into tears "catastrophically" when the examiner insisted on her trying this task.

(d) *The use of other senses to take the place of the affected ones.*—A patient with defective vision may use touch to aid him with the perception of objects. The disability resulting from defective hearing may be lessened by the use of vision, as in lip-reading, and so on. An example of this is the behaviour of a patient (case R. R—, Dr. Goody's case, Nat. Hosp. No. 34717) who suffered from a type of visual disorientation. All objects appeared to her to be very small and seemed to recede slowly into the distance. She was asked to judge the distance of certain objects in the room from her bed as she lay there. She said, "I know things can't be as far away as they seem because I've measured this room by walking up and down and across it, and it's only a small room." When she was asked to describe an object by looking at it she always stretched out her hand towards it, and if she was able to reach it, she would examine it carefully with her fingers before replying. This tactile aid to vision seemed almost compulsive, because her hand had to be forcibly restrained if she was to use vision alone during the test. As Goldstein has pointed out, "there is a tendency for the organism to maintain a performance capacity on the highest possible level, compared to its former capacity." This tendency is to be seen in *organically* diseased patients only. The hysteric does not wish to maintain a high performance capacity.

(e) *The excuses* made for poor performance are generally feeble and often naïve, although they seem sufficiently valid to the patient. For instance, if writing or drawing are impaired, the patient may say, "I haven't done any writing for a long time," or "I've never been able to draw, not even as a child." A patient has even been heard to excuse her poor memory by saying, "I've been lying in bed so long, I haven't had to use my memory. I'm out of practice." The genial, worried, "Ah, now you've got me—I never *could* do—such and such. You've found my weak spot all right"—(when the patient is asked to do as simple a task as, for example, the drawing of a daisy head) is so common and characteristic as almost to be diagnostic of organic disease by itself.

The behaviour described is aimed at protecting the patient from the catastrophic reaction. In addition, there are other factors which are typical of organic disease.

III. *Difficulty with the Description of Symptoms.*

If the symptoms of disease are very strange, the patient may be unable to understand what has afflicted him. Sensory symptoms may be so unlike normal sensations as to be indescribable. The patient with organic disease will seldom volunteer information that seems "crazy" to him. He will prefer to keep an uneasy secrecy. If he trusts the examiner, however, he may be persuaded to describe his symptoms, and will do so in a typically bewildered and hesitant manner, with many apologies and interjections of, "I know it sounds rather silly," or "I don't expect you'll be able to understand," or, "It's crazy, isn't it?," and so on. Fear is a common accompaniment of bizarre symptoms such as distortions of vision or other sensations. Hallucinations always give rise to alarm. In addition, the patient may be aware that "something is wrong," but he may be able to discuss his troubles in general terms only. It may require a careful and patient analysis of symptoms into their component parts before an exact description can be given. For example, to a patient suffering from spatial or visual disorientation the world may "seem a muddle." Examination may reveal that the cause of the "muddle" is loss of stereoscopic or binocular vision, or partial loss of vision due to scotomata, or movement of objects due to nystagmus, or visual perseveration, and so on. The most strange symptoms are likely to occur during the early stages of disintegration of function (and therefore before the appearance of physical signs which develop later), before total ablation of function has occurred. Hallucinations, for example, may be experienced as early symptoms, which disappear as the disease progresses. A hysterical patient will, as a rule, have no hesitation in describing his symptoms in detail. An organically diseased patient who has bizarre symptoms may unconsciously invent or superimpose other symptoms upon the real ones, in order to make them more readily understandable to himself. In other words, he attempts to relate them to the original "framework" of sensations and movements. If, for instance, a limb is affected by a sensory disturbance and become clumsy or "dyspraxic," the patient may say the limb is paralysed—that it is "weak," or "useless." In fact, there may be no loss of motor power, nor change in the tendon reflexes. Goody (1949) has pointed out that sensation and movement are inseparable. It is therefore

not surprising that a sensory defect will cause disorders of movement even though the motor component of a movement is unimpaired. This state of affairs may be seen in patients suffering from isolated disease of the thalamus, one example of which has been described by Head and Holmes (1912).

IV. *Desire for Reassurance.*

When the patient does admit to having a disability he demands reassurance, and hopes and believes he will be cured. This hopeful attitude may be easily seen from his efforts to help himself and his desire to succeed at all performances. He suffers from a great unwillingness to accept the disability. "It's nothing serious, is it, doctor?" "It'll pass, won't it?" he says.

V. *Variability of Performance.*

Another marked feature, highly characteristic of organic cerebral disease, is the variability of symptoms and signs and the variability of performance. This has been described by Goldstein (1939) and Critchley (1950). The patient's symptoms and subjective signs vary from moment to moment, or from day to day. Variability is in itself an indication of the organic nature of the lesion. A hysteric tends to preserve his disability in a clearly defined pattern. The organically diseased patient may, at one time, be able to perform a certain movement or test without hesitation, while at another he does not know how to begin it. Total ablation of function does, of course, occur in organic disease, but not unless the disease is gross or advanced. Hysterical patients tend to suffer from severe or absolute defects of function. In addition, sensory disturbance in organic cortical disease is "graded." There is seldom a distinct and easily defined boundary between normal and abnormal sensations, but a gradual change from one to the other.

VI.

Another feature of organic disease is that a single function or performance will never be affected in an isolated manner—as may be the case in hysteria. Invariably other performances are also affected, although perhaps to very slight degree. Defects of performance in other fields are always demonstrable. Certain aspects of behaviour and performance, however, may remain intact, while others are impaired. An example of this is the case J. A— (Dr. Williams's case), a girl of 8 years, who was thought to be a "bright child, suffering from a fairly specific word-blindness." On examination, apart from her great difficulties with reading and writing, it was found that her powers of calculation were defective, she was unable to tell the time correctly, she showed slight right-left disorientation, and a slight difficulty with voluntary movement (she was unable to tie a bow, or to knit). She was, however, a cheerful, energetic child, who talked normally, could help her mother in the house, and had many friends of her own age, who did not apparently regard her as abnormal in any way.

VII.

Finally, Goldstein has pointed out that the patient with organic cerebral disease is unable to cope with abstract situations, or prefers to deal with the "concrete." Goldstein's term for this is "categorical" behaviour. When this behaviour is seen in a person of previously normal or high intellectual capacity, it is essentially a feature of organic disease. For example, a patient who is asked to give a list of colours describes those which he can see in the ward around him, or if asked to give a list of animals, does a mental tour of the zoological gardens, naming cage after cage as he remembers them. The patient may have no hesitation in admitting this trick.

SPECIFIC DISTURBANCES OF FUNCTION OCCURRING IN ORGANIC CEREBRAL DISEASE.

(1) It is probably true to say that when a distortion in the perception of sensory stimuli belonging to a particular category occurs as a manifestation of organic disease, impaired appreciation of the particular stimuli is also present. For example, if a visual disorientation occurs, some degree of impairment of visual acuity in the field in which the disorientation is present can be demonstrated. Similarly, if tactile inattention is present in a part of the body, some impairment

of appreciation of touch should be demonstrable in the affected part. This impairment may, however, be exceedingly slight.

(2) *Incontinence*.—Hysterical patients are rarely, if ever, incontinent of urine or faeces during attacks resembling epilepsy, or at other times.

(3) *Homonymous hemianopic field defects*.—These are seldom hysterical in nature.

(4) *Visual hallucinations*.—When these are of ill-defined nature, and grey or dull in colour, they are rarely hysterical in origin.

(5) *Mirror-writing*.—It is generally believed that the performance of mirror-writing indicates hysteria. The cases of mirror-writing originally reported by Critchley (1928) describe mainly right-handed patients who wrote mirror-wise with their left hands—this representing a dissociation. Mirror-writing, when performed with the right hand in right-handed patients, is a form of “dyspraxia,” possibly due to an inability to perform movements at will in specific directions. It is, perhaps, also sometimes associated with disorders of the vestibulo-ocular system. Of four patients admitted to the National Hospital demonstrating mirror-writing or mirror-performance of some kind, two suffered with vascular lesions of the left posterior cerebral artery, one had a tumour in the right parietal region of the brain, which extended deeply to involve the corpus callosum, and one had a pinealoma which was centrally situated.

Lesions which give rise to symptoms of a subjective nature may, of course, involve the visual pathways or visual cortex, the sensory pathways or sensory cortex, the vestibular system or vestibular connections, the “parietal cortex” in either hemisphere, the corpus callosum, or the temporal lobes. The disturbances which arise as a result of these lesions are largely qualitative in nature, or subjective, and often cannot be substantiated by objective information in the form of physical signs. The behaviour reactions described above will, nevertheless, confirm the presence of organic disease in the majority of cases.

SUMMARY.

In an attempt to distinguish organic cerebral disease from the conditions called “hysteria,” it is suggested that patients suffering from organic cerebral lesions demonstrate specific behaviour reactions (some of which have been described by Goldstein), and that patients suffering from hysteria do not show these reactions. Organically diseased patients attempt to preserve the integrity of body and mind, and to maintain a normal existence. Hysterical patients tend to dissociate and to disintegrate. A patient with organic cerebral disease, if forced to become aware of his disability, is liable to suffer from a “catastrophic reaction.” He tries to protect himself from this reaction by orderliness, trick movements and manoeuvres, the avoidance of situations which would expose his disability, the use of other senses to take the place of the affected ones, and the finding of excuses for his failure. Organically diseased patients may have difficulty with the description of unusual symptoms (in contrast to hysterical patients), they preserve an anxious attitude towards their disabilities, and require reassurance; they demonstrate great variability of signs, symptoms and performance. Finally, organic disease of the cortex diminishes a patient’s power to deal with abstractions.

These behaviour reactions may help to confirm the presence of organic cerebral disease in those patients who suffer from symptoms which are subjective in nature and are not accompanied by physical signs.

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