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THE 'DREAMY STATE' AS AN EPILEPTIC AURA, WITH REMARKS ON THE OCCURRENCE OF ELABORATE MENTAL STATES AT THE BEGINNING OF EPILEPTIC FITS

By

MAX LEVIN, HARRISBURG, PENNSYLVANIA

HUGHLINGS JACKSON, in his later years, paid much attention to a phenomenon occurring early in some epileptic fits and commonly known as an 'intellectual aura' or 'dreamy state.' Of these terms Jackson preferred the latter, since he thought the phenomenon was not a true aura. In this paper I shall try to show that it is, at least in some cases, an aura.

The reader will find a description of the dreamy state in several of Jackson's papers¹ and in Kinnier Wilson's paper,² and it need not be repeated here. Nor shall I outline Jackson's views on the nature of the epileptic seizure, save briefly to mention two points bearing on this discussion. According to Jackson the aura—the very first manifestation of the fit—occurs during, and is concomitant with, the epileptic discharge. The phenomena occurring after the discharge he divided into two groups: (1) negative symptoms, representing loss of activity of paralysed higher centres, and (2) positive symptoms, representing the activity of intact lower centres released from the control of higher centres. The importance of this distinction is best seen in the slightest seizures, which, as Jackson emphasized, are especially often followed by elaborate actions (positive symptom), occurring in association with some loss of consciousness (negative symptom).

Jackson's opinion of the nature of the dreamy state is expressed in the following passages. In 1876 he was reported (I, 274)* as follows: 'Dr. Hughlings Jackson thinks they (dreamy states) are not comparable to ordinary warnings; they are not, he thinks, the result of the epileptic discharge of the highest centre, but are owing to over-activity of next lower centres, as yet

* Bracketed figures refer to volume and page of the *Selected Writings of John Hughlings Jackson*.

untouched by the discharge.' He made similar statements in 1879 (I, 295, footnote), 1880 (I, 313), and 1888 (I, 386). On the other hand, in 1889 he made this important statement (I, 380, first footnote): 'In former papers I have spoken of what is known as the Intellectual Aura (I call it "dreamy state") as being the positive element in some cases of the first degree of post-epileptic states. . . . *I now feel uncertain as to the exact symptomatological nature of the "dreamy state"*' (italics mine). From the last sentence one might infer the possibility that Jackson was no longer certain that the dreamy state is a release phenomenon, but this inference is weakened by the fact that Dr. James Taylor, in presenting Jackson's views on the dreamy state in the Introduction to Volume I of the *Selected Writings* (p. xii), mentioned nothing to indicate that Jackson had changed his original opinion.

In endeavouring to establish that the dreamy state may occur during the epileptic discharge, I shall employ two bits of evidence: (1) in some cases the dreamy state occurs as the initial manifestation of severe fits; (2) in some cases it repeatedly occurs by itself for a considerable length of time before the appearance of the first severe fit. The data supporting these statements will now be cited.

Cases in which a Dreamy State is the Initial Manifestation of Severe Fits.—In the case of the patient 'Quaerens,' Jackson said (I, 390) that the patient had a dreamy state 'at the onset of his fits.' The patient X, whose case was studied by Ferrier and reported by Jackson (I, 398), described her fits as consisting of three distinct stages, the first being a dreamy state. In the case of M. W., the patient's severe fits 'began' (I, 398) with a dreamy state. (That there are some cases in which the dreamy state does not occur at the very beginning of the fit is indicated by the case of William B. (I, 397); in this case the fits began with vertigo; after this there was a peculiar taste; 'the next thing was his "dreamy state."')

Cases in which a Dreamy State Repeatedly Occurs Alone for a Considerable Time before the Appearance of the First Severe Fit.—That early in the history of some cases a dreamy state may repeatedly occur as an isolated phenomenon is evidenced by the following statement (I, 274): 'It is very common—indeed, he (Dr. Jackson) thinks it is the rule—for patients who have these so-called intellectual warnings to have slight abortive attacks stopping short at them—to have the so-called intellectual aura only. And here is a practical point—viz., that these "abortive" seizures are sometimes early in the case the sole ones.' This is borne out by at least four of Jackson's cases: the case of 'Quaerens' (I, 388), the case of H. (I, 389), the case of M. W. (I, 398), and the remarkable case of Z (I, 400 and 458). Kinnier Wilson's ² Case 6 also falls in this category. Wilson's Case 4 may be mentioned: the patient had recurrent feelings of unreality, accompanied by olfactory sensations; while she had no epileptic fits, three near relatives were epileptic.

I submit that when a sensation in some cases occurs at the apparent beginning of severe fits, and when (in the same or in other cases) it repeatedly

occurs by itself for a considerable time before the appearance of the first severe fit, it cannot be regarded otherwise than as an aura. A comparison may in these respects be made with other auras, e.g. the common epigastric aura. Jackson said (I, 285) that patients 'will tell us that for months before they had any affection of consciousness preceded by an "epigastric sensation," they occasionally had that sensation alone, and thought little or nothing of it. . . . It is certain that these sensations may occur paroxysmally for months without anything further. The fact that such a paroxysmal sensation is often epileptic in nature is shown by the future of the cases : undoubted epileptic affections, attacks with convulsions and tongue-biting, come on, and each of these severe paroxysms is preceded by the sensation. What was once all is now the so-called warning of the severe fit. Strictly speaking, it was when it occurred alone a rudimentary or incipient fit of epilepsy ; and when it becomes what we call a warning, since a severe fit follows, it is the inception of the severe fit.' The logic of the passage just quoted is impeccable. When a sensation repeatedly occurs alone for several months, after which it then begins to occur as the warning of severe fits, one is bound to conclude (1) that it occurs during discharge of the discharging lesion ; (2) that this discharge is at first relatively slight, only after several months becoming severe enough to overcome the resistance of the lower centres, thereby causing a severe fit.

Jackson insisted that the dreamy state occurring alone should not too quickly be dismissed as hysterical. He said (I, 390) : 'He who neglects the "dreamy state" because it is indefinite . . . may not even surmise that his patient has the serious disease epilepsy in a rudimentary form until a severe fit comes to tell him so. Even then it may be said that the slight paroxysm "developed into" epilepsy ; but I insist that such slight paroxysms are themselves epileptic.' I contend that in these cases not only is the dreamy state epileptic, but, since it for a time constituted 'all of the fit,' it must have occurred *during* the epileptic discharge.

Why, then, did Jackson regard the dreamy state as a release phenomenon rather than an aura ? The answer is best stated in the following passage (I, 313) : 'They (dreamy states) cannot be owing to an epileptic discharge. It would be a remarkably well-directed and distributed epileptic discharge which would give rise to the exceedingly compound mental state of being somewhere else. Besides, it must not be forgotten that there very often is along with the dreamy state one of the crude subjective sensations mentioned (sensations of smell, etc.). It is scarcely likely that one thing, an epileptic discharge, should be the physical condition for a sudden stench in the nose—a crude sensation—and also the physical condition for an infinitely more elaborate psychical state.' In many other passages (e.g. I, 274, 295, 301, 386 ; II, 88) Jackson emphasized the elaborateness of the dreamy state, implying that this is an objection to the view that the dreamy state may occur as an aura.

In answer to this objection, I shall try to show that it really is not absurd

to suppose that, in some cases, concomitant with the epileptic discharge, there may be an *elaborate*, rather than the more usual *crude*, mental state.

First it will be necessary to consider what Jackson meant by 'elaborate' and 'crude.' Of Jackson's many statements on this point the following is the most explicit (I, 300) :

'Let us give an example to show broadly the difference betwixt a crude sensation and an elaborate psychical state. Coloured vision—a crude sensation warning at the onset of some epileptic paroxysms—is sometimes quickly followed by "seeing faces." The mere statement declares the immense difference in elaborateness ; the numerous different relations of sensations of colours, of extensions and distances, which make up the spectral image of a face, constitute a vastly more complex phenomenon than any development of colours and outlines attending an epileptic discharge. The most elaborate visual phenomena of some migrainous paroxysms—fortification outline, differently arranged colours, appearance of vibration, etc.—are far less elaborate than a spectral face. There is as much difference betwixt "balls of fire" and a spectral face as there is betwixt a house and heaps of material of that house when pulled down ; or betwixt a series of elaborate musical chords and the noise made by playing the notes of those chords in a few seconds. But such elaborate phenomena as spectral faces are, it is supposed, *less* elaborate than those psychical states we have called "dreamy states," and sometimes spoken of as being voluminous. Thus, a spectral face is a much less complex psychical state than the feeling of "being somewhere else," or of imagining that a thing now seen was formerly seen under the very same circumstances.'

Jackson, then, regarded the seeing of the 'ball of fire' as a crude mental state, the spectral face as more elaborate, and the dreamy state as still more elaborate. His reasons for regarding the second as more elaborate than the first are explicitly stated ; but I have nowhere found a statement of the reason why Jackson regarded the third as more elaborate than the second. This reason is, I think, obvious ; perhaps its very obviousness is why Jackson never stated it (assuming it is true that he never stated it). At any rate, we shall have to infer the reason. I think it is the fact that the dreamy state consists of a *representation* rather than a *perception*. While seeing a ball of fire or a spectral face, the patient perceives something (in this connexion it matters not that the perceived object is 'imaginary'), whereas during a dreamy state he has a representation of something. No one will dispute the statement that representation stands higher in the evolutionary scale than perception.

In order to understand this matter correctly, I suggest that there are two kinds of elaborateness, one relating to the criterion of complexity and the other to that of representativeness. Thus, as between seeing a ball of fire and seeing a spectral face, the latter is held to be the more elaborate because, as pointed out by Jackson in the quotation cited, the face exceeds the

ball of fire in complexity of outline and detail ; both, however, are perceptions—in other words, as regards the criterion of representativeness, they are equally lacking in elaborateness. On the other hand, as between seeing a spectral face and having a dreamy state, the latter is held to be the more elaborate because it is a representative, while the former is only a perceptive, mental state. In this paper I am concerned with only the second kind of elaborateness.

Coming directly to the question of the occurrence of a representative mental state as an aura, one must consider the substrate correlative with the mental state in question. I refer to Jackson's important discussion of faint and vivid images. In a former paper³ I considered Jackson's views on this matter at some length. Here I shall state his views only in the briefest way. Jackson (II, 69, 70) said that when one has a *vivid* image (e.g. when one sees a brick), there is strong excitation of certain parts of lowest, middle and highest centres ; when one has a *faint* image (e.g. when one merely *thinks* of a brick once seen), the excitation is weak and is confined to the highest centres. Now, since there are all degrees of intensity of an epileptic discharge, there is nothing incredible in the assumption that a faint image may occur as an epileptic aura. It is conceivable that in the substrate correlative with a given image a strong discharge will manifest itself as a vivid image, a weak discharge as a faint image. On this assumption, in the substrate correlative with the image of a ball of fire a strong discharge would cause one to ' *see* ' a ball of fire, while a weak discharge would cause one to have a *representation* thereof—one would, in other words, have the sensation one has when one thinks of, or remembers, a ball of fire.

The epileptic discharge being excessive, it might seem that any mental state concomitant therewith must of necessity be vivid rather than faint. This, I believe, does not follow. When it is said that the epileptic discharge is excessive, the implication is only that it is *relatively* excessive ; it need not be, though it may be, absolutely excessive. An illustration may make this clear. When I think of a brick, there is discharge of the substrate correlative with the faint image brick. This discharge may be normal or abnormal. It is normal if the image comes to my mind as the logical consequence of the train of thought with which I am at the moment occupied. (1) Suppose, while reading a book, I come across the word ' brick ' ; it is then natural and proper for me to think of a brick, and the discharge of the substrate is quite normal, *being due, not to pathological instability of the substrate, but to stimulation issuing from other functionally related substrates*. (2) Even if the idea of a brick comes to my mind ' out of a clear sky,' with no relevance to the preceding train of thought, the discharge may still be normal, provided the idea occurs in response to an ' unconscious ' train of ' thought.' In this case the substrate is discharged in response to other discharges which were not concomitant with (conscious) mental states. Here, as in the previous example, the discharge of the substrate ' brick ' is due, not to pathological instability of the

substrate, but to stimulation of it. (3) Now suppose a case in which the substrate is discharged, not in response to stimulation issuing from neighbouring substrates, but because of abnormal instability of some part of it. *Now, however faint be the discharge, it is excessive*, since the substrate, if it were healthy, would, at the moment in question, *be in a state of repose instead of discharge*. In this case, then, the discharge is not normal but epileptic. Assuming it to be of just the right degree of severity, the patient will have a faint image 'brick,' this image constituting a true aura. If the attack happens to be the first the patient has had, and if it stops short with the aura, the patient will not know he has had an epileptic attack; all he will know is that for no apparent reason the idea of a brick suddenly popped into his mind. If later the occurrence is repeated over and over again, and if it is followed by loss of consciousness, etc., its epileptic nature will become evident.

I have seen one case in which the aura consisted of a faint image. An intelligent epileptic, studied at the Harrisburg State Hospital, said that at a previous stage of her disease she had had minor seizures, ushered in by a warning which she described thus: 'It was just as if I had seen a lot of garbage—the disgusting sensation that you'd get if you saw garbage. It was never as though I were actually *smelling* the garbage: it was just the sensation you'd have if you saw it without getting a whiff of it.' When one gets a whiff of garbage, one has a vivid olfactory image; when one sees garbage but gets no whiff of it, one has a vivid visual image but only a faint olfactory image. The patient's aura consisted of precisely this faint olfactory image.

The conclusions are offered that (1) dreamy states are representative, or, in Jackson's terms, faint, mental states; (2) representative mental states may occur *during* an epileptic discharge.

Attention may be called to an interesting point in the description of a dreamy state given by one of Jackson's patients, who said (I, 295) that while in this state 'I seem to think of a thousand different things all in a moment' (Kinnier Wilson's 'panoramic memory' type). This feeling would seem to be related to an ordinary reminiscence in the same way that a generalized spasm is related to an ordinary muscular contraction. Jackson regarded the epileptic convulsion as a 'contention' (I, 431) of the patient's movements; it is 'nothing more than a sudden excessive and temporary contention of very many of the patient's familiar normal movements—those of smiling, mastication, articulating, singing, manipulating, etc.' In another place (I, 355) he gave the following illustration: 'If there be a centre for locomotion, then during slight sequent discharge of its elements in health there is walking or running; but if very many of those elements were to discharge, suddenly, rapidly, and excessively, the man walking or running would not go faster; on the contrary, he would be stopped, would be stiffened up into a tetanus-like attitude by the *contemporaneous* development of many locomotor movements' (*italics in original*). Similarly, in the case of the man who 'seemed to think

of a thousand different things all in a moment,' I would suggest that there was a 'contention' of faint images.

It is necessary to refer again to Jackson's statement (I, 313), cited above: 'It is scarcely likely that one thing, an epileptic discharge, should be the physical condition for a stench in the nose—a crude sensation—and also the physical condition for an infinitely more elaborate psychical state.' This, it seems to me, is by no means unlikely. There must be a tremendous amount of overlapping of the substrates correlative with the uncountable myriads of mental states which any person is capable of having, and it is not inconceivable that the substrate of a crude sensation may coincide in part with that of an elaborate state. In that case, discharge of those areas which the two substrates have in common, might, under proper conditions, manifest itself as simultaneously occurring crude and elaborate mental states. One may consider the analogy of a man who is father of a family, president of a bank and member of an amateur orchestra. In him the three rôles of father, banker and musician overlap. A single event—his death—will cause three simultaneous manifestations: a family will be deprived of their father, a bank of its president, and musicians of a fellow-player.

The main part of this paper ends here. I conclude with a consideration of the origin of certain utterances made by Z during his dreamy states. Z wrote (I, 401): 'I think that during the abnormal state I generally verbalize some such phrase of simple recognition as, "Oh yes—I see," "Of course—I remember," etc.' I submit that these utterances bear to the sensation of the dreamy state a relation identical with that which chewing and tasting movements bear to crude sensations of taste and smell.

Jackson's explanation of the chewing and tasting movements that frequently accompany gustatory and olfactory auras is that they occur *reflexly* in response to excitation of gustatory centres. He said (I, 303): 'I think it will be found that in many . . . cases the voluminous mental state occurs in patients who have at the onset of their seizures some "digestive" sensation—smell, epigastric sensations, taste, or, in cases where there are *movements implying excitation of centres for some such sensations*, such movements as mastication' (*italics mine*). Again (I, 385): 'Along with this voluminous mental state, there is frequently a "crude sensation" ("warning") of (a) smell or (b) taste; (or, when there is no taste, there may be movements, chewing, tasting, spitting, *implying* (?) an epileptic discharge beginning in some part of the gustatory centres) . . .' (*italics in original*). Speaking of Z, Jackson said (I, 458) that the tasting movements which occurred in some of his dreamy states 'were, I suppose, the *indirect* "reflex" results of an epileptic discharge beginning in gustatory elements of a certain region of the cerebral cortex' (*italics mine*). Jackson, then, regarded the chewing and tasting movements, not as a release phenomenon, but as the result of reflex excitation of centres closely related to the seat of the discharging lesion. I

would suggest that the same conclusion may be reached in regard to Z's utterances ('Of course—I remember,' etc.): they may be said to have occurred as the result of reflex excitation of centres closely related to those whose discharge was concomitant with the dreamy state. Speaking crudely, during the dreamy state the patient has a 'sensation of reminiscence'; this automatically leads to the uttering of such appropriate remarks as 'I remember.'

Z's utterances, then, should not be placed in the category of those automatic utterances that occur *after* slight epileptic seizures. Post-epileptic automatic utterances constitute a release phenomenon and are owing to activity of centres untouched by the discharge. Z's utterances, on the other hand, are owing to a slight 'secondary discharge' (I, 467) of motor centres closely bound up with those centres whose discharge is concomitant with the dreamy state.*

REFERENCES

- ¹ *Selected Writings of John Hughlings Jackson*, 1931–1932.
- ² WILSON, S. A. K., *Modern Problems in Neurology*, 1928. Chapter IV ('The Psychological Components of Temporal (Uncinate) Epilepsy').
- ³ LEVIN, M., 'Hughlings Jackson's views on mentation: their value for the psychiatrist,' *Arch. Neurol. and Psychiat.*, 1933, **30**, 848.

* In this sentence I purposely speak of a *slight* secondary discharge. A *severe* discharge would manifest itself, not in harmonious movements of articulatory muscles, but in a 'contention' of movements; there would be convulsive movements, not utterances.