

# Psychological Significance of Visual Auras

Study of Three Cases with Brain Damage and Seizures

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THE INTERPLAY of emotional and physiological factors in the production of the epileptic attack has been recognized since the time of Hippocrates.<sup>22</sup> The psychological study of patients with convulsive disorders has led to the formulation of many hypotheses concerning the psychic mechanisms associated with seizures.<sup>1, 3, 5, 6, 7, 11, 13, 21</sup> Freud, for example, believed that the epileptic reaction places itself "at the disposal of the neurosis, the essence of which is to get rid by somatic means of masses of stimuli which it cannot deal with psychically."

Certain investigators have explained the convulsive attack as the symbolic representation of an emotionally charged fantasy<sup>5, 7, 21</sup> or as a defense against the expression of a disturbing or threatening thought or feeling.<sup>1, 13</sup> Barker noted an association between the seizure and emotional conflicts and demonstrated clinical and electroencephalogram seizures during discussions of pertinent emotional material with epileptic patients.<sup>2</sup>

Despite the abundant reports on the role of psychological factors in idiopathic epilepsy, there has been little study of the significance of the visual aura. This is probably due to the relative infrequency of visual auras associated with epileptic seizures. In a series of 1500 patients with convulsions, Cobb and Lennox found that only 8, or approximately 0.5 per

cent, gave a history of pictorial visual hallucinations preceding a convulsion.<sup>15</sup>

The clinical neurologist interprets the pictorial visual aura as a neuronal discharge from the gray matter of the temporal or occipital cortex.<sup>10</sup> Electrical and mechanical stimulation of these cerebral areas have produced formed visual hallucinations in conscious patients, usually as the prelude to a generalized convulsion. Penfield regards such phenomena as "psychical seizures." He considers them as a circumstance of cortical dysfunction, but states that they may have more general meaning to the patient.<sup>17</sup>

Hendrick psychoanalyzed 2 patients with idiopathic epilepsy and pointed out that their visual auras represented a crystallized reenactment of anxiety-laden experiences of childhood. Schick has stated that the motor, sensory, and intellectual phenomena which characterize the aura are remnants and reminiscences of mental events of which the patient has never been fully aware.<sup>20</sup> He believes that they are decipherable in the same way as fragments of a dream and may give a clue to the psychodynamics of the seizure. In his textbook on psychoanalysis Glover alludes to the psychological import of the aura but does not illustrate this with any case material.<sup>9</sup> Rows considers the visual aura to be a revival of several condensed memories associated with disturbed emotional states.<sup>19</sup>

Hill and Mitchell studied a wide variety of visual, auditory, and kinesthetic auras in 50 epileptic patients over a period of several years.<sup>14</sup> They concluded that patients in one

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category relived in their auras "past events which were of emotional significance to them, the events being similar to those found in the anamnesis of patients suffering from psychogenic disturbances." In another category of cases, the auras were meaningless to the patients but became significant on detailed psychiatric examination. The authors stated that in the latter group the auras resembled "concealing or screen memories," which served as a cover for repressed events of emotional significance.

In the present study, 3 patients with gross structural disease of the brain were investigated. In all 3, convulsions preceded by pictorial visual hallucinations were one of the manifestations of encephalopathy involving the occipital lobe. The clinical study included psychological testing and detailed psychiatric interviewing, including hypnosis in two cases. Under hypnosis we have been able to reproduce experimentally the visual aura without an associated seizure and to study its meaning to the patient. From this data, we have inferred that the visual aura, although certainly one manifestation of a focal cortical lesion in these subjects, is also a medium of expression for certain aspects of the total personality of the individual.

### Case I

A 26-year-old white male army officer suffered a penetrating wound of the left occipital area from mortar shell fragments on August 16, 1950. There was a period of unconsciousness lasting 5-10 minutes. Following debridement, the neurological examination was negative except for a right homonymous hemianopsia and inability to read and write. On September 4, 1950, the patient developed papilledema and abnormal plantar reflexes. A left occipital craniotomy was performed with drainage of a small cerebral abscess, and removal of a superficial brain fungus containing bony fragments in the occipital lobe. A bone flap measuring  $1.5 \times 2.0$  cm. around the skull wound was also removed. The patient recovered rapidly on antibiotic therapy. A secondary closure of his scalp wound was done on September 18, 1950. On December 18, 1950, a tantalum cranoplasty was done.

In February, 1951, this patient began having

convulsive seizures every 2 to 3 weeks. These were preceded by a visual aura which is described below. Next, he would turn his head to the right. As his head turned, he lost consciousness for 15-20 minutes and experienced generalized tonic and clonic movements and tongue biting. The patient was returned to duty on Dilantin medication. He was admitted to the hospital on October 15, 1952. At that time he stated that the reading and writing difficulties had completely cleared.

Physical examination was normal except for a repaired skull defect in the left occipital area and a right homonymous hemianopsia.

Laboratory studies, including complete blood count, urine analysis, fasting blood sugar, serum calcium, chest x-ray, spinal fluid cell count, and protein and serology, were within normal limits. Skull x-rays showed three small intracranial metallic foreign bodies and the tantalum plate. An electroencephalogram was abnormal with runs of slow waves, hypersynchrony, and amplitude asymmetry.

A pneumoencephalogram showed slight generalized cortical atrophy. During his stay in the hospital the patient had no seizures and was on phenobarbital and Dilantin therapy.

The patient was discharged February 28, 1952, with a diagnosis of posttraumatic encephalopathy with right homonymous hemianopsia and occipital lobe seizures.

### Description of Visual Hallucinations Preceding a Convulsion

The visual hallucinations described by the patient preceded a convulsion and lasted 5-10 minutes. First he would notice a yellow and white flickering in his completely blind right homonymous field. For part of this time, a hallucinated scene would appear as a "movie strip" in the medial third of the blind field, appearing below, moving upwards, and disappearing at the top of the field. His "movie scenes" were usually of two types, as he remembered them.

#### "Pill Bottles"

The patient described a "moving stream of pill bottles," appearing below and floating singly up along the medial border of his blind field. The bottles had labels, but he was unable to read them. The bottles were closed and each contained pills or capsules, many of

which were brightly colored. There was one type of pill or capsule in each bottle.

#### *"Buddy's Death"*

In this aura, also appearing in his "movie strip," he would see "a friend, a fellow officer," appear at the bottom of the field, and follow him upwards as he walked by several foxholes occupied by American soldiers. Finally he watched his friend "get shot in the throat by his own men." As his friend "fell on the ground dead," the scene would disappear at the top of the blind field.

#### *Comment*

The patient sustained a severe penetrating wound of the left occipital area at the age of 22. Following this experience he had a right hemonymous hemianopsia and aphasia. Over a year later he began to have grand mal seizures preceded by elaborate visual auras. An electroencephalogram revealed general dysrhythmia.

#### **Psychiatric Investigation**

##### *Hypnosis*

The patient was hypnotized and was able to achieve a fairly deep, somnambulistic trance. He was given the suggestion that he re-experience one of his auras. Almost immediately, his entire body began to shake and he burst into uncontrollable crying. Between sobs he blurted out, "It's Chuck . . . I can see him laying there . . . dead . . . why should it be him? . . . why should I be alive?" It was apparent that instead of experiencing the "buddy's death" aura, he was substituting the abreaction of an intensely disturbing combat scene of his friend's death in much the same way as has been observed in cases of acute combat neurosis during an injection of Pentothal sodium.

Further discussion during hypnosis revealed the fact that the patient had not been present when his friend Chuck was killed by his own men. News of this occurrence came to him while he was hospitalized for his own injury. During the same period, he also learned of the death of another officer, a close

friend of his and Chuck's. The patient remembered being upset by this news. Several months later, he reported, his convulsive seizures began. Soon after their onset he experienced the "buddy's death" aura. The patient stated that the content of his aura was the same as that of his fantasy concerning Chuck's death. (Thus, his visual aura consisted of a revivification of a remembered fantasy rather than the memory of an actual experience.)

The patient was then given the suggestion under hypnosis that he experience the "buddy's death" aura in *exactly* the same way as he had experienced it prior to one of his seizures. He next reported that he was seeing "yellow and white flashing lights" which were then followed by the visual hallucination of his buddy being shot. This scene was described as appearing on a moving film strip in the medial one third of his field defect. He expressed the conviction both in the hypnotic and in the subsequent waking state that the aura reproduced experimentally was identical with and just as "real" as the spontaneous aura.

He was next given the suggestion under hypnosis that he re-experience the aura of the "pill bottles." He stated that he could now see the bottles moving upward as though on a film strip, but that they were moving "too fast" for him to be able to read the labels or describe the contents of the bottles. When it was suggested that the movement of the bottles would slow down and he would be able to see them more distinctly, he identified the printing on the labels as Dilantin and Phenobarbital and described the shape and color of the capsules and pills appropriately.

The patient was then "regressed in time" to the occasion of his first seizure. He described the "flashing lights" and became quite anxious. He complained of a "terrible feeling" sweeping over him, and it appeared that he might be on the verge of having a generalized seizure. At this point the hypnotic trance was terminated.

#### **Interviews**

Upon completion of the investigation under hypnosis all the subsequent interviews

were conducted in the waking state. The patient appeared to be an intelligent, emotionally labile individual who was in acute conflict between his dependent longings and his strivings for self-sufficiency. The standard battery of psychological tests did not reveal evidence of significant intellectual deficit as the result of his brain injury. Some of his responses on the Rorschach test, such as "little offshoots like flames of fire," resembled those that have been observed in cases of combat neurosis.

In the course of psychotherapy, the significance of the patient's auras became increasingly clear. In terms of his clinical symptoms, it was evident that he was experiencing a prolonged grief reaction, which had many of the characteristics of a combat neurosis. Among his symptoms were preoccupation with the death of his buddies, recurrent crying spells, suicidal fantasies, and "free-floating" anxiety. Moreover, he revealed feeling of guilt in his obsessive ruminations: "Why was it them (who got killed), not me?"

Since the patient did not recall having any dreams, one clinical characteristic of a combat neurosis was missing. However, the "buddy's death" might be considered analogous to a combat dream in the sense that it consisted of the repeated reproduction of an unpleasant scene and was accompanied by considerable anxiety.

#### *Significance of "Buddy's Death" Aura*

The patient's train of associations to the "buddy's death" aura provided data explaining why he reacted so strongly to the death of his fellow officer. In discussing this subject, he expressed particular bitterness over the fact that his two buddies were killed *by their own troops*, one by a sentry in his own platoon who mistook him for the enemy and the other by misdirected mortar fire from another company in his own regiment. He then spontaneously brought out the association that he had felt the same way when his father had died as the result of the "mismanagement" of a friend.

When the patient was 6 years old, his father had developed an acute appendicitis

and the attending surgeon, who was a very close friend of his, did not make the diagnosis until it was too late to save him. The appendix perforated and his father developed generalized peritonitis and died.

The inferences drawn from this series of associations were borne out by subsequent material produced by the patient. The killing of his buddies revived the feelings surrounding the death of his father and contributed to the development of a clinical depression. In this setting, the aura may be regarded as one form of expression of the mourning process. The clinical neurosis, however, was found to be superimposed on a pronounced character disorder, and the full meaning of the aura cannot be understood until we have commented on his second aura and his fundamental characterological problems.

#### *Significance of "Pill Bottles" Aura*

Subsequently, the aura of the "pill bottles" was discussed with the patient. In his free associations to this aura, he stated, "I dislike the idea of taking pills. I hardly ever took them before . . . I wonder what will happen if I stop taking them? Feel dependent on something else, I guess. I don't like to depend on anybody for anything . . . I've always wanted to get away from my dependency on anybody (*Anybody?*). Well, on my mother . . . Being dependent on pills is like being dependent on my mother . . . it's a sign of weakness (*What kind of weakness?*) . . . Having feminine traits—not strong physically, afraid of getting hurt, no self-confidence."

#### *Background*

This excerpt illustrates a connection in the patient's mind between taking pills and being dependent, weak, and effeminate. His mother, who was a domineering, extremely proper person, had always "babied" him and inhibited any expression on his part of rebellious feelings or resentment. After his father's death, her overprotectiveness evidently became intensified. He recalled that she "did everything for me" and discouraged his participation in vigorous athletics for fear he would get hurt. In adolescence, he was

afraid of self-assertion in any form and frequently felt weak and helpless. As long as he remained in the position of a "baby," he felt the danger of being completely engulfed by his mother. On the other hand, he felt blocked from being aggressive and self-sufficient like the other boys because of vague fears which he attributed to "lack of self-confidence."

He stated that he joined the army at the age of 17 in order to "get out from under her shell." He evidently made considerable progress in his psychological development in the Army and had begun to consolidate a masculine identification by the time he went into active combat in Korea. Following his brain injury, however, he experienced a revival of all his old feelings of inadequacy, weakness, and helplessness. When he was discharged from the hospital and returned to duty, he married one of the nurses who had taken care of him. In this connection, it is of interest to note that all the important females in his life—his mother, older sister, and wife—were nurses. He described his wife as "practically identical to my mother."

After 1½ years of marriage, his wife gave birth to a son. In discussing his reaction to having a son, he alluded to a fear that the boy might not get the right bringing up and might turn out to be a weakling like him. After discussion of this fear, it was discovered that behind it lay the notion that he, like his father, would die when his son was 6 years old.

#### Psychodynamics

In the formulation of the psychodynamics of this case, it becomes evident that the patient's injury, plus the death of his buddies, had an overwhelming effect on him and revived his earlier attitude that being aggressive and masculine is dangerous and even fatal. His fear of being a man was illustrated by his fantasy that having a son would lead to his premature death just as it did for his father.

In response to the traumatic events in combat, he regressed to his earlier position of passivity and dependency and chose as a mate

a woman who had fed him with pills and cared for his physical needs. This position, however, was a disturbing one for him since it included for him the risk of having his residual masculine strivings encroached on further and the danger of becoming completely engulfed by the mother figure.

With this background, the significance of the two auras becomes clearer. They illustrate, in a condensed mental image, the major dilemma in the patient's life. If he is a man, he will get killed, as dramatized in the aura of the buddy's death. If he gives in to his passive-receptive wishes, which are symbolized in the aura of the pills, he will be swallowed up by the predatory mother figure.

#### Case 2

H. Y., a 25-year-old white male, suffered an injury to the back of his head at the age of 3, when his older brother toppled over his high chair. His mother later told him he was unconscious for "a long time" and that he had bled from a "cut scalp."

At age 14, he began to have "blackouts," which occurred once a month and which appeared only when he became "extremely angry." His first attack occurred during a fight with his brother. Immediately before an attack, he noticed the sudden onset of epigastric discomfort for 1–2 minutes. Then the entire visual field turned red, the color obscuring all other vision. The red color turned to black, then red again, changing 5–6 times in "less than one minute." The patient then lost consciousness and fell to the floor. During a spell he "thrashed around," and injured himself by lacerating his face and scalp, but was not incontinent of urine or feces and did not bite his tongue. After a spell he was confused for 30–60 minutes.

His "attacks" stopped at age 16 but recurred when he was in a prisoner-of-war camp. Upon returning home this patient was having one spell a month.

On admission physical examination, including neurological examination, was negative.

Laboratory studies, including complete blood count, urinalysis, blood serology, chest and skull x-rays were within normal limits. An electroencephalograph showed a 5-per-second slow wave focus in both occipital areas with runs of 5-per-second irregular seizure activity from the same

areas. Visual field studies were within normal limits.

#### Comment

This patient gave a history of posttraumatic epilepsy following an occipital head injury with unconsciousness at age 3. A visual aura of alternating red and black fields of vision suggested an occipital lobe lesion. This impression was confirmed by a discharging slow wave focus in both occipital lobes on the electroencephalogram.

#### Psychiatric Investigation

The patient described the characteristic occurrence of his aura as follows: "I get so mad, I don't care what happens. I'll destroy whatever's in my way. Then I see *red*. It's real red, not my imagination . . . my *blood* is boiling. I'm on *fire*. I'm burning all over."

Under hypnosis he was able to recall vividly the incident of his head injury at the age of 3 and the experience of being thrown from his high chair by his brother and of striking his head against the hinge of the door. He recalled that when he regained consciousness he had a towel wrapped around his head which was soaked in *blood*. He had frequent fights with his brother subsequently. One of the common idioms used by members of his family was "I got so mad, I saw *red*."

In another hypnotic session, the patient was induced to relive the scene of the fight with his brother which preceded his first convulsive episode at age 14. In the re-enactment, the examiner played the role of the brother. As the "argument" progressed the patient became visibly angry and took a wild swing at the examiner. He then reported that all he could see was *red*. He was told that he would not "black out" but that he would be able to see the color more distinctly and would be able to tell what it really was. Following this suggestion, he indicated that the color was taking on form and described it as follows: "It now looks like a puddle of blood . . . like it's curdling . . . my *blood*."

It is apparent from the patient's associations in both the waking state and under hypnosis, that *red*, *blood*, *fire*, and *anger* were closely

connected or equated. The red in his aura appears to represent not only the intensely destructive rage toward his brother but also the memory trace of his bloody encounters with his brother.

#### Case 3

A 24-year-old white married female, mother of 3 children, at age 16 was given nitrous oxide anesthesia for a tooth extraction. She was unconscious for an undetermined period of time. She had amnesia for the next 4 weeks. Afterwards, for several months, she had blurred vision, generalized weakness and trouble "thinking of" and pronouncing words. From the age of 19 to the time of admission she had had frequent episodes of "dizziness and light-headedness." On the average of once in 6 months she would lose consciousness for 5-10 minutes. These episodes were preceded by a visual aura lasting 1-2 minutes, in which she would see "red and purple and green colored balls in front of my eyes, several inches wide, floating up and down like snowflakes." The visual aura usually came on when she was angry and disappeared in 1-2 minutes. It occurred *without* loss of consciousness every 2 to 3 weeks. At times, however, it was followed by sudden loss of consciousness, lasting 5-10 minutes, during which period she frothed at the mouth, had clonic and tonic movements, and sometimes bit her tongue. There was no incontinence of urine.

Physical examination was within normal limits except for dysnomia and right-sided hyperreflexia. Routine laboratory studies were within normal limits. An electroencephalogram was read as "moderate and diffusely abnormal because of seizure activity," but showed no focal abnormality.

#### Comment

This young married woman suffered brain damage at age 16 following nitrous oxide anesthesia. Her encephalopathy was manifested by dysnomia and right-sided hyperreflexia. Secondary to her brain damage she had occipital lobe convulsions preceded by a visual aura. Her electroencephalogram was moderately and diffusely abnormal.

#### Psychiatric Investigation

This patient both clinically and in the

psychological tests showed evidence of a character disorder with hysterical and schizoid features. It was possible to establish that her auras always coincided with a period of intense anger, either at her husband or children, and were most apt to occur just before or at the beginning of her menstrual period. The intensity of her rage is illustrated by the following description of her feelings just preceding one of her auras. "I got angry and wanted to strike out . . . It was with the intention to kill . . . I could have murdered Jeanie [her daughter] for making that mess [in the trailer]." Generally, the aura occurred at the peak of her fury. She frequently noticed that when the aura appeared her anger would begin to subside. Occasionally, however, her anger maintained a high intensity and she would then lapse into unconsciousness and have a convulsion.

#### *Significance of the Aura*

The associations to various elements of the aura revealed the deep sources of her fury. When questioned about the general *form* of the aura, she observed that it reminded her of "falling snow" and then spontaneously associated to a vivid recollection of walking through the snow with her younger brother when she was 6 years of age. Since he was unable to keep up with her, she had to carry him and greatly resented the burden. She observed that she was now afraid to allow her 4-year-old son to go out when it was snowing lest he be smothered. In the course of her associations, she declared that she had always wanted to be a boy and resented the fact that she was a woman. She also described her feelings of chagrin when she was no longer able to surpass her brother in playing boys' games.

Discussion of the *colors* in the aura in a similar way linked up with memories of specific meaningful and emotion-laden experiences in her life. The *red* in the aura had the appearance of blood and led to the association that she usually had the auras before her menstrual period. She then brought out an abundance of material regarding menstruation and mutilation. She noted that her grand-

mother had been concerned because she reached the age of 15 without having had her menarche. After making numerous allusions to the idea that if she didn't have a period she might go crazy, her grandmother took her to a naturopath who gave her some "herbs." Shortly afterwards, she had her first period and fainted. In describing this episode, the patient exclaimed, "The green spots [in the aura] are exactly like the green leaves that man gave me." Other associations to the red spots in the aura included memories of having cut her fingers, seeing her brother's hand bleed, and observing blood coming from her mother's face after her father in an alcoholic fury struck her.

Her association to the *purple* dots in the aura was that it was the same color as some African violets her grandmother used to have. She recalled being told by her grandmother, "Don't touch them or they'll die." Her association to this was that all her relatives except her brother were dead.

The *green*, as has been already mentioned, was associated with the green herbs she had taken at the age of 15. Another association was that after her mother died all the green shades in the house were drawn. She went on to discuss her resentments toward her parents, both of whom died from "alcoholism" when she was 15. She expressed a vindictive satisfaction over their death since they had mistreated and neglected her.

The ease with which these associations flowed from the patient suggested a loosely integrated personality structure. The associations to each of the elements in the aura converged on certain interconnected themes: rage at being a female, feelings of having been mutilated, hostile, competitive attitudes towards males, death wishes toward her family.

### Discussion

The 3 patients who were the subjects of this study had evidence of brain damage and showed these findings:

1. History of head injury with prolonged unconsciousness.

2. Abnormal neurological examinations with such signs as hyperreflexia, visual field defects, language disturbance, and changes in intellectual functioning.

3. Abnormal electroencephalograms.

4. Grand mal seizures with vivid visual auras of the type generally interpreted as resulting from neuronal discharges in the paraoccipital area.

The over-all purpose of this investigation was to determine the role played by psychological processes in the formation of the visual aura. The material which provided the basis for our conclusions included: (1) the medical and psychiatric history; (2) the battery of psychological tests; (3) the productions of the patients under hypnosis, including the reproduction of the aura by revivifying a past experience and "unmasking" the fantasy behind the aura; and (4) the associations of the patients in psychotherapeutic interviews.

We observed in all 3 cases that the auras occurred at the time the patient was experiencing the build-up of a powerful emotion. The significant feature of this emotional state was that by virtue of its intensity and its specific quality it was anxiety-producing. This was most clearly illustrated in Cases 2 and 3 where the aura appeared in the setting of a wave of destructive anger. This rage evoked anxiety because, if not checked, the patient could literally kill somebody. Only rarely did the patient act out completely the violent impulse since it either subsided soon after the appearance of the aura or the aura passed into a grand mal convulsion.

#### Associations to the Aura

A second group of data indicating the significance of the aura was brought forth in the associations to the aura under hypnosis and in the waking state. The hypnotic state facilitated the emergence of particularly vivid associations to the aura. The fantasies that were stimulated expressed in a symbolic and condensed form the emotional configurations that were found to be central issues in the patients' lives. An example of this was the fantasy of the buddy's death (Case 1) which the patient abreacted. Another example was Case 2,

where the patient re-experienced his aura of diffuse redness and then, when told he would be able to see what this "really was," the content of the hallucination changed into a pool of coagulated blood. This technique of "unmasking" the underlying fantasy has been well described by Rosen.<sup>18</sup>

The associations to the aura that were produced in the waking state, while not possessing the rich imagery of those obtained under hypnosis, uncovered a complex network of affectively toned experiences and multilayered attitudes and drives. From the cluster of associations it was possible to uncover the major pathological trends in the patients' lives.

#### Interpretation of Content

On the basis of these data, we have reached the conclusion that the visual aura is a mental phenomenon similar to a dream and, like a dream, expresses an important psychological content. The characteristics of dreams, such as manifest and latent content and the mechanisms involved in the dreamwork, have been demonstrated to have a counterpart in other psychic productions; i.e., the hallucinations of the schizophrenic,<sup>8</sup> the delirious visions of the toxic states,<sup>16</sup> and delusions.<sup>4</sup> We believe that in a similar way the formation of the aura involves the operations of specific organizing principles, such as plastic representation, symbolization, condensation, and distortion. Moreover, by applying the same general rules as followed in the interpretation of dreams, it is possible to translate the manifest content of the aura into the latent content. A schematic illustration of the interpretation of the auras is contained in Table 1.

In Case 1, the aura of the buddy's death was interpreted as representing, in part, the patient's masculine, aggressive drives. The theme of death appeared to be the punishment meted out by the superego for his aggressive wishes. The raw materials for this aura included the memory traces of his father's death and of his combat experiences and his fantasy of his buddy's death. The aura of the pill bottle expressed his passive-receptive needs and drew on the memory traces of his mother's giving him pills and

also receiving pills from his wife after his injury.

In the second case, the aura of the diffuse redness expressed the patient's intense destructive rage. It was a condensation of the memory of his injury at the age of 4, of the fight with his brother, and of the fantasy of spilling his brother's blood and his own and watching it congeal.

In the third case, the aura of the many colored dots encompassed a number of closely related "latent thoughts." It expressed her re-

resentation of a powerful drive. When the build-up of this drive reaches a certain end point, the aura appears. Apparently the aura is able to bind a certain quantity of energy attached to the drive, since in many instances (Cases 2 and 3) the drive subsided after the appearance of the aura. In this respect, the aura serves a defensive purpose. However, if the drive is not sufficiently dampened, generalized cerebral hyperactivity and a grand mal convulsion may occur. From this standpoint, if the dream is considered "the guard-

TABLE 1. SCHEMATIC REPRESENTATION OF THE DYNAMICS OF AURAS, ILLUSTRATING THE SIMILARITY TO DREAMS

Case	Manifest content	Latent content	Mechanisms
1	"Buddy's death" "Pill bottle"	Aggressive, masculine wishes Passive-receptive wishes	} 1. Plastic representation 2. Condensation 3. Symbolization 4. Distortion
2	Diffuse Redness	Hostile, destructive wish	
3	Colored Dots	Rage over being a woman	

jection of the feminine and maternal role, her vengeful competitiveness with men, and many vivid memories of mutilation and death.

*Mechanisms*

To illustrate the operation of the mechanisms utilized in the formation of the aura, which correspond to various activities of the dreamwork, an example will be given of each type.

1. *Plastic representation*: Pictorial representation found in each of the auras.
2. *Condensation* (Case 3): Each "dot" linked up with a medley of past experiences.
3. *Symbolization* (Case 1): The "pill bottle" was the symbol of the patient's receptive needs.
4. *Distortion* (Case 3): The themes of rage, castration, and death running through all the latent thoughts were completely camouflaged in the benign-appearing aura.

**Role of the Aura**

Proceeding from these assumptions, we believe that it is possible to assign a role to the aura in the psychic economy. As has already been indicated, the aura is the ideational rep-

resentation of a powerful drive. When the build-up of this drive reaches a certain end point, the aura appears. Apparently the aura is able to bind a certain quantity of energy attached to the drive, since in many instances (Cases 2 and 3) the drive subsided after the appearance of the aura. In this respect, the aura serves a defensive purpose. However, if the drive is not sufficiently dampened, generalized cerebral hyperactivity and a grand mal convulsion may occur. From this standpoint, if the dream is considered "the guard-

ian of sleep," the aura may be considered the "guardian of wakefulness."  
It is apparent from the foregoing that many functions of the psychic apparatus are operative in the formation of the aura. It is, therefore, concluded that the aura is a complex phenomenon resulting from the total integrative activity of the brain, rather than from the activity exclusively of an isolated area. The occurrence of the aura depends on the presence of several factors: (1) an electrical disturbance of the brain; (2) certain tensions or drives, which, for reasons as yet unknown, cause hypersynchrony to the point of initiating a seizure; and (3) psychological configurations based on past experiences and fantasies which provide the content of the aura.

**Summary and Conclusions**

Three patients with vivid visual auras and grand mal seizures were the subjects of an investigation of the psychological significance of visual auras. Each patient showed evidence of gross structural disease of the brain in the paraoccipital area. Among the techniques utilized in the clinical study were psychological testing, hypnosis, detailed psychiatric in-

terviewing, and free association. In 2 cases it was possible to reproduce the aura experimentally under hypnosis and to elicit directly the hallucinatory expression of the underlying fantasy.

From the data, we have concluded that the visual aura, while one manifestation of cerebral encephalopathy, expresses certain crucial emotions of the individual and plays a definite role in the psychic economy. By tracing the fantasies and chain of ideas evoked in association to the aura, one can interpret its meaning in much the same way as a dream is interpreted. We believe on the basis of our findings that certain specific organizing principles, analogous to the dreamwork, are employed in the formation of the aura. As a result of the activity of these mechanisms the aura presents in visual form a synthesis of crude impulses, emotional configurations, and memories.

Our material suggests that, in addition to being the ideational representation of a drive, the aura also serves to bind some of the energy attached to the drive. When the quantity of excitation associated with the drive is not sufficiently bound by the aura, the convulsive threshold of the brain is exceeded and a grand mal seizure occurs.

The aura can no longer be considered as formed exclusively by a disturbance in a discrete portion of the cortex but is to be regarded as a complex phenomenon resulting from the total integrative activity of the brain.

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