

AMNESIA, REAL AND FEIGNED

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FATHER, forgive them for they know not what they do. A plea for mercy based on irresponsibility has always been prominent in courts of justice. The degree and kind of irresponsibility has varied from a lack of understanding, as in the case of Christ's assailants, to complete ignorance of the crime, as in persons whose defense is amnesia.

Amnesia means "loss of memory." As used medically, this loss is temporary; hence we need not consider conditions such as idiocy, certain forms of insanity, or of brain pathology in which memory, along with other functions of the mind, is continuously impaired. Nor does our discussion include the forgetfulness which results from inattention, the passage of time, or natural sleep. On the other hand, it does include partial as well as complete amnesia. It should be remembered that the terms amnesia and unconsciousness are not synonymous. Unconsciousness necessarily includes amnesia, but amnesia does not necessarily include unconsciousness. A person may act and talk rationally, and a minute later have no recollection of what he did and said.

The conditions accompanied by a loss or impairment of memory are many: their borders may be ill-defined or overlap; more than one condition may be operative in a given case; and some carry a more urgent plea for forgiveness than others. In addition, evidence on which to base judgment is insecure because the state of forgetfulness is subjective and easily feigned, and the testimony of witnesses is usually circumstantial. Information imparted to the physician by a patient and his friends is more reliable than testimony given in court, for it is not colored by the fear of legal consequences. Amnesia is important in civil cases in which testamentary competence, responsibility for accidents, and neglect of duty are involved; but it is of more moment in criminal cases. Whether the accused is executed, imprisoned, or sent to a hospital depends on the genuineness and the cause of his forgetfulness.

It has been said that the three most important causes of amnesia, as encountered in criminal courts, are alcohol, epilepsy, and hysteria.[†] However, a more complete classification of amnesia is necessary for an orderly

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[†] East, Some Forensic Aspects of Epilepsy, 72 J. Ment. Sci. 533, 534-35 (1926).

review of the problem. In medical terms, three main causes or types of amnesia may be enumerated: pathological, psychological, and feigned.

PATHOLOGICAL AMNESIA

This term is used to cover those cases in which the amnesia is associated with and presumably caused by abnormal structure or physiology of the brain. The conditions in this group are diseases; the amnesia is real; the person affected is not responsible for his actions; and he deserves hospital and not prison treatment. The abnormal condition of the brain may be either imposed or inherent.

Imposed brain disorders.—Acquired pathological conditions of the brain which may cause temporary amnesia are numerous. A blow on the head sufficient to produce unconsciousness may cause a retrograde amnesia with loss of memory for events which preceded the injury, as well as for a considerable period after consciousness is apparently regained. Acute injury to the brain from any cause may be followed by a lapse of consciousness which, under certain circumstances, may be recurrent. The delirium or stupor which accompanies numerous medical conditions is for the patient a period of amnesia; the delirium of an acute infection or toxemia, impaired consciousness from syncope, asphyxia, carotid sinus syndrome, or the excessive use of narcotic drugs are examples. Diabetic patients who have taken an overdose of insulin have been arrested for drunkenness.

In legal experience, undoubtedly the most frequent cause of amnesia and the one involving the most serious consequences is alcoholic intoxication. The legal complications which pursue the drunkard are innumerable, but the more serious crimes committed “under the influence” display violence more frequently than design and cunning. Alcoholic intoxication may be alone responsible, or it may be combined with other causes.

Inherent brain disorders.—Persons who experience periods of amnesia without antecedent brain injury, intoxication, or other apparent cause have been from the earliest times the subject of speculation. Until the last two or three centuries these persons have been regarded as “possessed.”² For thousands of years these persons were believed to be controlled by demons whose hold could be broken only by torture, and death of the victim. The courts of law bred hideous crimes—committed by the judges. In modern times, miscarriages of justice find attenuated expression in commitment of many persons who are not responsible for their acts to prisons rather than to the hospitals where they belong.

² A detailed and fascinating account of the slow evolution of medical knowledge and treatment of persons who at times were not themselves is found in Zilboorg, *A History of Medical Psychology* (1941).

Epilepsy is the medical condition in which periods of amnesia most frequently appear "out of the blue." The term is simply the Greek word for seizure, and until recently it was what each doctor chose to define it. Recent studies have demonstrated, however, that beneath diverse clinical expressions is an underlying instability of the electrical activity of the brain, so-called abnormal brain waves. The brain wave pattern is an hereditary trait, and abnormal waves, if not caused by some acquired brain injury, are an inherent disturbance in the normal functioning of the brain, transmitted through one or both parents.³

There are three main types of epileptic seizures. The symptom which is common to all three is amnesia. The amnesia may be accompanied or overlaid by other symptoms, the most dramatic being the convulsions of grand mal. This form of fit may result in serious injury, usually to the person himself. The law is especially involved over arguments regarding compensation. Did the employee fall over an obstruction or did he fall in a convulsion? The presence of drooling, of a bitten tongue, heavy slumber, and on waking, stupor, headache, vomiting, or muscle soreness indicate that a convulsion occurred. Was the injury which resulted from the convulsion wholly due to the convulsion or was it because the employee was, say, on a ladder at the behest of the employer?⁴

Petit mal is a transient period of unconsciousness (and amnesia) lasting but a few seconds. This form of epilepsy may exist for years without the friends of the patient or even the patient himself being aware of it. But there is no mistaking the huge brain waves of an alternate dart and dome formation, which invariably accompany a petit mal seizure. Because petit mal occur predominantly in young persons and are so transient, they are relatively innocuous. Occasionally petit mal follow one another in rapid succession, causing a state of mental dullness or incapacity which may persist for hours.⁵

In all types of seizures, the public is principally endangered if the person operates a swiftly moving conveyance, whether trolley, train, automobile,

³ For an extended treatment, see Gibbs and Gibbs, *An Atlas of Electroencephalography* (1941); Lennox, *Science and Seizures* (1941); Penfield and Erickson, *Epilepsy and Cerebral Localization* (1941); Lennox, Gibbs, and Gibbs, *The Inheritance of Epilepsy as Revealed by the Electroencephalograph*, 113 *J.A.M.A.* 1002 (1939); Lennox, Gibbs, and Gibbs, *Inheritance of Cerebral Dysrhythmia and Epilepsy*, 44 *Arch. Neurol. & Psychiat.* 1155 (1940); and Lennox, Gibbs, and Gibbs, *Twins, Brain Waves and Epilepsy*, 47 *Arch. Neurol. & Psychiat.* 702 (1942).

⁴ Judicial decisions in some of these cases are discussed by Lennox and Cobb in *J. Indus. Med.* for December, 1942.

⁵ Putnam and Merritt, *Dulness As an Epileptic Equivalent*, 45 *Arch. Neurol. & Psychiat.* 797 (1941).

elevator, or airplane. In one state, California, physicians are required to report the names of their epileptic patients to the Board of Public Health in order that their driver's licenses may be cancelled.⁶ The definition of epilepsy given in the ruling, "any condition which brings about momentary lapses of consciousness, and which may become chronic," is obviously inadequate.⁷ If epilepsy is reportable, alcoholism should also be reportable.

The third type of epileptic seizure is the principal object of attention in this discussion. The various names applied are but descriptions of the patients' condition: psychic, psychic equivalent, psychic variant, or psychomotor seizures, fugues, cloudy or twilight states, automatism, paroxysmal mania, or epileptic insanity. Confusion has arisen because writers of the last century (and some of the present) call seizures of this group, if short lived, *petit mal*. The electroencephalograph, if taken during an attack, easily distinguishes the two. As with other forms of epilepsy, the greatest diversity of conduct is seen. The person may be too helpless and dazed to do more than lie stupidly in bed, or he may perform complicated acts with intelligence and skill; the period may be so fleeting as to suggest only the amusing forgetfulness of the "absent-minded professor," or it may last for days or weeks. During the attack the person's actions may appear only a little odd, or he may suddenly become a maniac; usually a person's successive attacks are much alike as regards length and severity, an important point when the wisdom of a legal commitment arises, but they may be utterly different. In the majority of instances the person appears to be sleep-walking or intoxicated; he is in a dazed, befuddled state, repeating clumsy automatic movements, out of touch with his environment, and incapable of any act of cunning or skill. We shall use the term psychomotor for this whole third group.

An illustration of the full physical command which a person may maintain is contained in the following report by a physician subject to periods of amnesia.⁸ On different occasions he crossed a difficult slope of glacier, played tennis without loss of skill, and made an uninterrupted railway journey with no recollection afterwards of how he managed. Most curious of all was a professional experience. He was about to examine a patient's chest when he felt the aura of an attack. "I remember taking out my stethoscope and turning away a little to avoid conversation. The next

⁶ Carter and Harvey, 18 Weekly Bull. Calif. State Board of Health 109 (1939).

⁷ Medical News, 113 J.A.M.A. 1971 (1939).

⁸ 1 Taylor, Selected Writings of John Hughlings Jackson, On Epilepsy and Epileptiform Convulsions (1931).

thing I recollect is that I was sitting at a writing-table in the same room, speaking to another person, and as my consciousness became more complete, recollected my patient, but saw he was not in the room." Later he found the patient in bed, and the diagnosis which he, the doctor, had written was found on re-examination to be correct.

In general, epileptic periods of amnesia have the following characteristics. They have fairly definite limits. The person can usually state what he was doing up to the certain point when all became blank. This point coincides with, or slightly precedes, aberrations in his behavior. The termination of amnesia is usually not so clear-cut, and it may extend well beyond the period of apparent recovery. Also, after a grand mal convulsion, the person may apparently regain consciousness and talk rationally but later remember nothing of this period.

The amnesia of psychomotor epilepsy is permanent. Neither probing of the memory nor passage of time will bring to light any memory of what took place during the "black out." Another important point is that the epileptic amnesia covers only the events around the seizure and not the person's whole past life. Occasionally, a person who has experienced a seizure of any type will be unaware that the attack has occurred. He is unaware of having been unconscious or amnesic. In spite of the examples which have been named, the amnesia of epilepsy is not always complete. The person may have a hazy or spotted recollection of what occurred "like a bad dream." Such periods are, however, unusual. In other instances, and these are frequent enough, there may be periods of moodiness, mental dullness, or ugly temper, which like seizures are recurrent but in which memory is not impaired.

The best evidence that a period of abnormal behavior is the outward expression of a disturbance of the brain, and not willful is provided by the electroencephalograph. The epileptic amnesia is accompanied by brain waves which are abnormally slow and large, waves in sharp contrast with the high voltage fast waves of a grand mal and the alternate fast and slow waves of petit mal. The brain wave record of a patient during various periods of a psychomotor seizure is shown in Figure I. Like clinically observable seizures, the electrical seizure discharges recorded on the electroencephalogram may be a mixture of two types.

About 85 per cent of epileptic patients have an abnormal record, even when not having any sort of seizure. Therefore, this technique is of the greatest importance in the diagnosis of inherent pathological amnesia. Of ninety-five patients who had a history of having had attacks of psychomotor epilepsy alone, 85 per cent had abnormal brain waves of some kind

and 42 per cent had bursts of high voltage slow waves, the type which is continuously present during an actual seizure. Nine different types and degrees of abnormality have been described. "Seizure discharges" are

PSYCHOMOTOR ATTACK

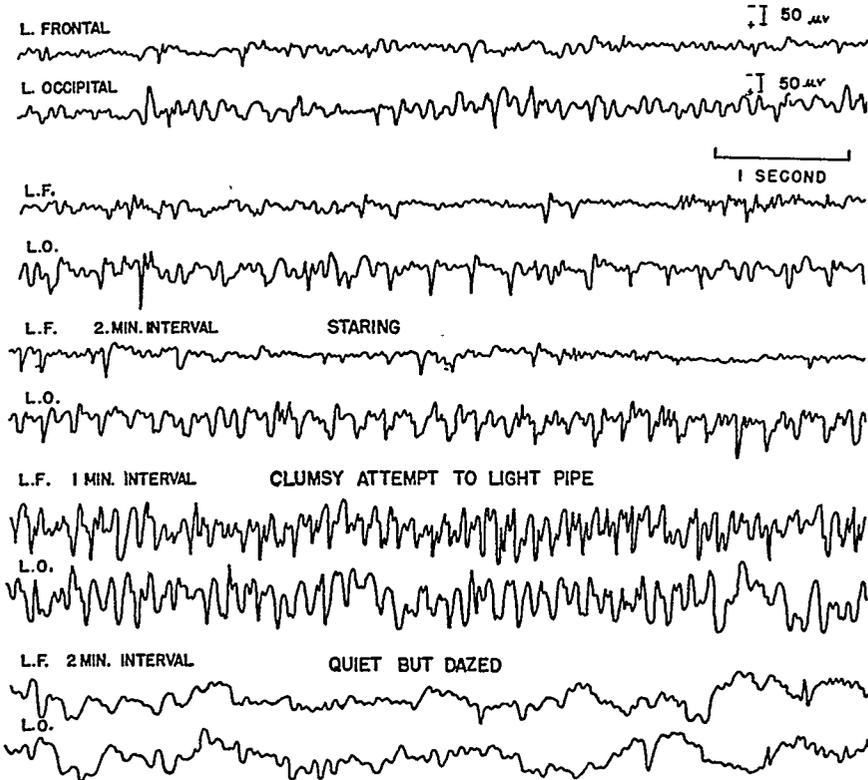


FIG. 1*

* Sections from the electroencephalogram of patient before, during, and after a psychomotor seizure. The curves represent two simultaneous tracings of activity, one from the left front and the other from the left back (occiput) of the skull. The topmost pair of curves represents the patient's "normal" record, made a number of minutes before the seizure began. The second pair of tracings, made several minutes later, has square-topped waves, which appear occasionally in the frontal lead and almost continuously in the occipital. At this time the patient was sitting quietly with the eyes closed, apparently conscious. The third pair of records, made two minutes later, shows more and deeper downward spikes in the occipital lead. The patient had opened his eyes and made no response to the request that he close them. One minute later (fourth pair of curves) he made clumsy efforts to light his pipe, spoke incoherently, tried to leave his chair and finally pulled the electrodes from his scalp. During this period the waves were of higher voltage and faster rhythm. In the lowest pair of records the patient obeyed commands and was quiet but still dazed. A few minutes later he was again in his usual state but had no recollection of his seizure and did not know that he had had one.—GIBBS, GIBBS, and LENNOX, 39 Arch. Neurol. & Psychiat. 298-314 (1938).

much more significant for epilepsy than a predominant rhythm which is merely somewhat slow or fast.⁹

Psychomotor epilepsy is relatively infrequent. In a group of 1,260 non-institutional patients, psychomotor seizures alone occurred in 9.5 per

⁹ Gibbs, Gibbs, and Lennox, Arch. Neurol. & Psychiat. (In press.)

cent and with some other form in 21 per cent.¹⁰ These percentages were 1 and 8 per cent, respectively, in a group of 1,800 patients studied without benefit of the electroencephalograph by neurologists throughout the country.¹¹ Psychomotor seizures are more common in adults than in children, and in men than in women. This last fact perhaps explains the observation of Baker,¹² that among epileptic criminals men are more numerous than would be expected from the proportion of men among non-epileptic criminals. Persons with psychomotor epilepsy tend to deteriorate mentally more rapidly than those with petit mal or grand mal, and, until the discovery of phenytoin sodium, their seizures were little influenced by drug therapy.

Thus far we have been discussing cases of amnesia with or without other symptoms as they appear in the physician's office. Probably only a fraction of 1 per cent of these will ever need to consult a lawyer. In the very rare patient, however, a psychomotor seizure may be characterized by a violence which merits the designation of "paroxysmal mania" or "epileptic insanity." The earliest example was Hercules, who in sudden fits of rage killed his best friends and his children. "The Disease of Hercules" is one of the early names for epilepsy. Rarely the patient is himself the victim. The Flemish painter, Van Gogh, was subject to periods of irrational conduct for which he seemed to have no memory afterwards. On one occasion, he cut off one of his ears, wrapped it in a sack and presented it to a woman friend. In his final attack, he shot himself in the abdomen.

When periods of unprovoked rage attended by amnesia occur in a person who is known to have had convulsive seizures, doctors and courts have quickly acknowledged the fact of epilepsy and the irresponsibility of the accused. If there is no family or past history of "ordinary" fits they have been puzzled. Maudsley¹³ was one of the first to point out that an attack of fury may be the sole expression of an epilepsy. His work contains instances in which periods of fury which he calls "mania transitoria" might be considered substitute phenomena for convulsive seizures. "Instead of the morbid action affecting the motor centers and issuing in a paroxysm of convulsions, it fixes upon the mind centers and issues in a paroxysm of mania which is so-to-speak an epilepsy of the mind." Again, "medical experience teaches us that whenever a murder has been com-

¹⁰ Ibid.

¹¹ Lennox, *Science and Seizures* (1941).

¹² Baker, *Epilepsy and Crime*, 47 *J. Ment. Sci.* 260, 264 (1901).

¹³ Maudsley, *Responsibility in Mental Disease* (1876).

mitted suddenly without premeditation, malice or motive, openly, and in a way quite different from the way in which murders are commonly done, we ought to search carefully for evidence of previous epilepsy and other symptoms allied to epilepsy.⁷⁴

Goodhart believes that the patient may show a motive and deliberate scheme in the commission of an act and may try to conceal it after regaining consciousness. The amnesia may not be complete. He mentions an epileptic who, after some words with his wife, killed her with an axe. Immediately after the crime, he declared his wife was dead but denied killing her. After several days of mental confusion he wrote to his wife to send him some clothes, apparently having no recollection of her death.⁷⁵

The most substantial contributions to the subjects of crime, epilepsy, and amnesia have come from the Broadmoor Criminal Lunatic Asylum in England. Two articles have appeared, thirty-two years apart. Baker⁷⁶ writing in 1901 stated that of 2,435 prisoners admitted in the past twenty-seven years, 165 or 6.8 per cent were epileptic. Of these, 67 per cent of the crimes were for homicide, actual or attempted, 4 per cent for rape or attempted suicide, and 29 per cent for offenses against property. Fourteen case histories are given; in about half of these the crime was committed in a fit of anger when the person was apparently aware of his actions, or else as the result of delusions or hallucinations. Rape was the offense in only two of the 165 cases.

The more recent of these articles is more pertinent to the question under discussion. Hopwood and Snell⁷⁷ collected one hundred cases at Broadmoor in which the prisoners' defense had been amnesia. The majority were in the fourth decade of life. The family history indicated insanity in thirty-two, chronic alcoholism in twenty-eight, epilepsy, suicide, or crime in seven each. The past histories indicated chronic alcoholism in thirty-eight, mental stress in thirty, head injury in twenty, previous insanity in

⁷⁴ Perhaps the most complete discussion of the subject of amnesia in epilepsy is the monograph by Maxwell, *L'Amnesie et les Troubles de la Conscience dans L'Epilepsie* (1903). This work includes a chapter dealing with the law and references to the articles of 1,200 authors. See also Stengel, *On the Aetiology of the Fugue States*, 87 *J. Ment. Sci.* 572 (1941); Davidoff, *Psychic Seizures as Focal Manifestations in Post-Traumatic Brain Disease*, 11 *Yale J. of Biol. & Med.* 557 (1939); and Prudhomme, *Epilepsy and Suicide*, 94 *J. Nerv. & Ment. Dis.* 722 (1941).

⁷⁵ Goodhart, 4 *Trans. Nat'l Ass'n for Study of Epilepsy and Care and Treatment of Epileptics* 114 (1906). Detailed case histories of crimes committed in periods of amnesia can be found in Spratling, *Epilepsy and Its Treatment* (1904); Walker, 29 *J. Nerv. & Ment. Dis.* 23 (1902); East, *op. cit. supra* note 1; and Smith, *A Case of Epileptic Homicide*, 47 *J. Ment. Sci.* 528 (1901).

⁷⁶ Baker, *op. cit. supra* note 12.

⁷⁷ Hopwood and Snell, *Amnesia in Relation to Crime*, 79 *J. Ment. Sci.* 27 (1933).

fourteen, previous periods of amnesia in twelve, and epilepsy in only nine. Ninety of the hundred had been convicted of murder or its attempt, six of indecency, two of arson, and two of theft. Of the ninety cases of assault or murder, a relative or sweetheart was a victim in 61 per cent of the cases. In twenty-seven instances the person attempted suicide after the crime, apparently because of horror or despair, for in all but one of these cases a relative or sweetheart had been the victim. The courts had decided that the amnesia was genuine in seventy-eight cases. Of these, thirty recovered memory for the events of the crime. In fourteen cases the amnesia was believed to be assumed, and in eight this point was not decided. The authors state that in genuine cases the onset and the termination of amnesia is somewhat blurred. If the amnesia is only partial, those events which involve emotions are better remembered. An impulsive crime which is followed by amnesia is frequent in the depressed phase of manic depressive psychosis, is rare in the manic phase and in schizophrenia and paranoia.

An important question concerns the frequency with which acts of violence are committed by epileptics. The examples of crime given by the authors mentioned, as well as popular stories, suggest that assault and murder by epileptics is a common-place performance. The incidence of epilepsy in this English prison for the criminally insane, 6.8 per cent, is ten times the incidence of epilepsy among United States drafted and enlisted men in the first world war. On the other hand, Thom¹⁸ found only thirty epileptics, 1.5 per cent, among the 1,932 inmates of the Bridgewater Hospital for the Criminal Insane in Massachusetts. Of these thirty, only two had done bodily harm.¹⁹

It makes a great deal of difference whether the material at the top or the bottom of a centrifuged tube is examined. We have so far been looking at the sediment deposited in prisons. In medical practice, instances in which an epileptic has committed a crime during a seizure are exceedingly rare. Hughlings Jackson,²⁰ who made the study of epileptics his life work, could name psychomotor seizures which were only potentially serious: a man who in a seizure unbuttoned his trousers; a boy who opened a pocket knife, holding it by the blade; a woman who started to cut bread but instead slashed her arm, after which she was psychotic for days. Gowers,²¹

¹⁸ Thom, *Epilepsy and Its Rational Extra-Institutional Treatment*, 10 *Amer. J. Psychiat.* 623 (1931).

¹⁹ East, *op. cit. supra* note 1 at 533, states that in England 0.4 per cent of 8,731 male prisoners and 0.6 per cent of 760 female prisoners were epileptic.

²⁰ Jackson, *op. cit. supra* note 8.

²¹ Gowers, *Epilepsy and Other Chronic Convulsive Disorders* (1901).

who analyzed the histories of three thousand cases, mentions nothing more serious than a man who undressed, another who struck a bystander, another who put articles in his pockets, and a woman who threw her child downstairs. Muskens²² mentioned no instance of a crime committed by any of his two thousand patients.

A person who cannot be cared for at home is usually sent to a state colony for epileptics; hence, these institutions are more likely to provide instances of violence than a clinic or private practice. The book by Spratling,²³ the head for many years of Craig Colony in New York, contains a chapter on the legal aspects of epilepsy but narrates only one or two cases from his own experience. Letters to the present heads of the colonies of Massachusetts, New York, and New Jersey asking for instances of assault by patients in states of amnesia brought statements that serious injury from such cases had not been encountered. One New Jersey patient had committed suicide because of a fear that he might harm someone in an attack.

My colleagues and I have reviewed the histories of perhaps five thousand clinic and private patients. Actual legal entanglements growing out of a period of unconsciousness or amnesia have been rare, though situations potentially dangerous are common. Following are examples: injury sustained during a seizure, usually a grand or petit mal; robbery or rape committed on the patient while unconscious; injury to the property or persons of others, as a result of automobile or other accident. I can recall no instance in which a patient of ours was convicted, or even accused of rape. After a grand mal or during a psychomotor seizure several patients out of each thousand have acted belligerently or caused minor injury to bystanders. I have never had personal knowledge of a homicide.

The prisoner's report of the events of a crime is often untrustworthy as emphasized by Baker.²⁴ For the false report to be self-accusatory points to the reality of the illusion.²⁵

The question arises as to why certain epileptics, having a seizure, will

²² Muskens, *Epilepsy; Comparative Pathogenesis, Symptoms, Treatment* (1928).

²³ Spratling, *Epilepsy and Its Treatment* (1904).

²⁴ Baker, *op. cit. supra* note 12.

²⁵ A college student had attempted suicide by cutting his wrists but could give no reason for this. Some weeks later he reported to the police that in an altercation he had killed a man, dragged his body to a vacant lot, and then in a panic had tried to buy a steamship ticket for Europe but did not have the needed money. The police accompanied him to the scene of the crime, but no evidence could be found to substantiate the student's story. He seemed as mystified as anyone. His electroencephalogram was abnormal. In the five years which have elapsed there has been no recurrence of trouble.

commit criminal acts and others not, and why a given epileptic will have many innocuous seizures and then one of great destructiveness. The following reasons may be advanced:

1. Different types of seizures arise from different portions of the brain. In the cat, electrical stimulation of a certain area of the brain produces an outburst of apparent rage. Possibly in an attack of epileptic mania, the seizure discharge originates in this area.

2. Actions during a psychomotor seizure may be conditioned by what the person was thinking or doing immediately before. Seizures of violence are more common in epileptic patients whose natural attitude is one of surliness and suspicion.

3. Psychosis and epilepsy may coexist and a criminal act may be the expression of the first, more than of the second. The person may believe he is being persecuted or his life endangered by an apparent friend who is really an enemy, or voices may tell him to kill. Whether these delusions and hallucinations represent a psychosis which exists side by side with the epilepsy, or results from the epilepsy, need not be argued here. Delusions when present may precipitate or accentuate the irrational or violent conduct of the epileptic. This violence may be a psychomotor seizure, the person being mentally confused and later amnesic. In other cases there may be no suspicion of a seizure; full memory is retained, and the act is simply an exaggeration of the person's customary irritability or of his uncontrolled suspicion or anger.

4. Violence may be the result of attempts forcibly to restrain a person who is in a state of automatism. The same statement may be made for a restraint imposed by a sedative drug, a fact too little recognized by physicians.

5. Finally, for many persons, alcohol is a potent precipitator of seizures. A person who will go berserk when drunk may be doubly dangerous if he is an epileptic with an ugly personality or with a history of psychomotor seizures.

PSYCHOLOGICAL CAUSES

The amnesia of this group of persons is owing to a disturbance of psychological processes or reactions. In contrast with the previous group, the structure, the chemistry, and the physiology of the brain cells are not affected. The brain and the mentality are normal, but the emotions and the mental reactions are not. Persons with psychological amnesia are usually classed as having psychoneurosis or hysteria. Though without demonstrable physical basis, psychological amnesia should not be called

imaginary. It is as real as amnesia from a brain concussion, and in the opinion of neuropsychiatrists, is as deserving of unprejudiced treatment.

Psychological amnesia most often arises out of some emotional blockage. The person faces a dilemma which he cannot resolve or has had experiences which he wishes to forget. His escape from this situation is by way of forgetfulness or amnesia. This type of amnesia differs from pathological amnesia in certain important respects.

In the first place, not being based on structural or chemical abnormalities, the amnesia is readily reversible. When the dilemma which necessitated the flight from reality is resolved and the subconscious mind releases the memory, the past events are gradually recalled. Ordinarily they do not come back all at once but little by little over a period lasting from hours to months. Again, however, the subconscious mind does not blot out only the events of the crime, but it blankets a wide space about them. Unlike the epileptic amnesia, this hysterical amnesia may, and usually does, cover the whole past life of the individual. The person is found wandering the streets unable to give his name or to recognize his wife or children when they are brought to him. However, he can read and write and perform skillful acts previously learned. But it may happen that only amnesic islands are present in a sea of remembrance.

The psychological act of forgetting occupies only a moment of time; hence during the period which is not a blank to the person, his actions and his memory were normal. Except in very rare instances, such as the physician mentioned by Hughlings Jackson, the actions of an epileptic person during a period which later he does not remember are obviously not normal. Unlike the epileptic who expresses concern, chagrin, and bewilderment over a past period of amnesia, the psychoneurotic seems little perturbed by the fact that all memory is gone.

Of the seventy-eight cases of genuine amnesia reported by Hopwood and Snell,²⁶ thirty eventually recovered their lost memory. The authors state that affairs which involve emotions are more likely to be recollected, but in the process of regaining the memory the crime itself may be remembered last. Impulsive crimes which are followed by amnesia are frequent in states of depression and rare in manic states and in schizophrenia. They divide amnesia psychologically into three classes: 1) those with a failure of association, as in imbeciles; 2) those with permanent disassociation; and, 3) those with a repression of memory as in hysteria. They state that recovery can be aided by the use of association tests, by skillful questioning,

²⁶Hopwood and Snell, *op. cit.* supra note 17.

by analysis of the person's dreams, or it may come spontaneously as the need for repression becomes less urgent.

As in the case of epileptic amnesia, certain presumptive evidence can be gained through a study of the person's family and past history. A family history of neurosis or a past history of psychic trauma, frustration, unhappiness, or gruelling experiences, symptoms of hysteria, psychoneurosis, or episodes of reversible amnesia, and a normal electroencephalogram support a diagnosis of psychological amnesia. Even when crime is not a complicating factor, the exact diagnosis may be difficult.

FEIGNED AMNESIA

Occasionally amnesia is simulated in an effort to escape some unpleasant duty. Usually, however, the more dramatic convulsive features are added; for example, by the soldier who seeks the honorable discharge of an epileptic, or by Kipling's private who wanted to avoid having to marry the Colonel's daughter. When the accused wishes to prove irresponsibility, the unmixed amnesia, being subjective, is more easily simulated than a convulsive fit.

"I don't remember" spoken in the witness box causes little more than a lifting of eyebrows in a civil suit, but in a criminal case the words, the circumstances, the actions of the accused, and his past family and personal history must be carefully weighed. Cross-questioning may catch the unwary.²⁷

The identifying features which have been named for pathological and psychological amnesia should be absent in feigned amnesia. A normal electroencephalogram is presumptive evidence against a plea of epileptic amnesia. The use of laboratory methods for the detection of lying need not be discussed here.

MIXED TYPES

The three causes or types of amnesia which have been named may overlap or be combined. An epileptic, who also has hysteria and is a malingerer, may have periods of amnesia which exhibit features of all three types.

Electroencephalographic evidence.—Two discoveries which have been made in recent years promise to aid the cause of justice. First, the elec-

²⁷ Baker, *op. cit.* supra note 12, cites an illustrative case wherein a man had a grudge against his neighbor: he selected a weapon, went to the neighbor's house, asked for him, and on his appearance struck him a fatal blow. He said he recollected nothing from the day before the crime until several days afterwards, and the defense of post-epileptic automatism was made. However, in an unguarded moment he revealed the identity of the policeman who arrested him and his occupation at the time of the arrest, which he stated took place two hours afterwards. "After what?" asked the examiner. The prisoner looked chagrined, would answer no further questions, and was convicted.

troencephalogram may assist in the separation of pathological amnesias from the other two groups. Second, the use of phenytoin sodium may provide a therapeutic diagnostic agent. This drug is of proven value in the control of psychomotor seizures and if unexplained acts of violence with amnesia are in the nature of epileptic seizures, then the successful use of this drug would tend to establish the cause of the behavior, and what is of much greater importance, might change a prospective long term prisoner into a productive member of society.

Certain limitations of electroencephalographic evidence should be stated. In the amnesia of syncope, delirium, hypoglycemia, and drug action, abnormal brain waves would be found only during the period of amnesia. They persist for days, months, or years after brain injury. In cases of inherent amnesia, abnormal waves were probably always present, but are worse during an actual seizure or period of amnesia. This last statement may not be true for the epileptic who though amnesic is conscious. Like many other types of evidence, the electrical evidence may not be conclusive. About 15 per cent of epileptics have a normal brain wave record, and about 15 per cent of normal persons have an abnormal record. Certain members of this latter group are relatives of epileptics. Also the significance of certain types of abnormal records is greater than others. Some degree of abnormality is found six times more frequently in epileptic than in normal persons. This multiple is thirty-four in the case of records showing seizure discharges, twenty in the case of records with very fast or slow waves, and two in the case of waves which are only moderately slow or fast.²⁸

Another important consideration is the existence of abnormal brain waves in persons who break the laws and yet are not subject to epileptic seizures. A number of authors have reported that an unusual proportion about 30 to 40 per cent of "behavior problem" children, have abnormal records. In a group of 275 candidates for military service, examination disclosed that the epileptoid type of electroencephalograph occurred five times more frequently in candidates with some neuropsychiatric history than in those with no such history.²⁹ In a miscellaneous prison population, only about 30 per cent abnormal records, against 15 per cent in a normal population, were encountered.³⁰ The proportion of abnormal records was no greater in murderers than in thieves. In England, 151 adults with

²⁸ Gibbs, Gibbs, and Lennox, *op. cit.* supra note 9.

²⁹ Harty, Gibbs, and Gibbs, *Electroencephalographic Study of Two Hundred and Seventy-Five Candidates for Military Service*, 2 *War Medicine* 923 (1942).

³⁰ Gibbs, Bloomberg, and Bogchi, *Trans. Am. Neurol. Ass'n* 87 (1942).

psychopathic personalities were examined.³¹ Among the aggressive psychopaths with histories of uncontrollable outbursts of temper, impulsive acts, violence to others regardless of the consequences, and determined suicidal attempts, abnormal brain waves were present in 65 per cent, which was twice the frequency found in the inadequate psychopathic group and four times that in a normal group. If brain wave tests were made of prisoners who had committed a crime without motive, premeditation, preparation, memory of the events, and attempt to avoid arrest (criteria proposed by East³² as indicative of genuine amnesia), it seems probable that the great majority would have abnormalities similar to those observed in epileptic patients. Such a finding should make them the object of intensified medical research and therapy in order to determine if drugs, effective for the control of psychomotor epilepsy, might save society the burden of their prison expense.

If criminals, without suggestive evidence of having had amnesia or a seizure at the time of the crime, have grossly abnormal brain waves, it seems fair to assume that the abnormal brain physiology plays some part in the abnormal social behavior. The technique, as yet little used in the courts, should not be used widely unless the records are made by dependable instruments and are interpreted by experienced persons. A suggestive case in which a murderer who pleaded post-epileptic confusion escaped capital punishment by having an abnormal electrical record, has been reported from England.³³ This case illustrates the possible saving to society in terms of unwise punishment. But the most salutary possibility of such investigation lies in its potentiality of preventing crime by the detection and treatment of incipient aberrants.

³¹ Hill and Watterson, *Electroencephalographic Studies of Psychopathic Personalities*, 5 *J. Neurol. & Psychiat.* 47 (1942).

³² East, *op. cit. supra* note 1.

³³ *Foreign Letters* (London), *The Electroencephalogram in Criminal Trials*, 121 *J.A.M.A.* 64 (1943).