condition must be the subject of a judicial examination before his testimony becomes admissible. The character and extent of his delusions should be shown, the amount of mental impairment which he has sustained, his general reputation for veracity, and whether his observations are prejudiced by his mental disease. Persons who have intellect enough to be thought competent as witnesses often believe themselves sane and wrongfully detained and are therefore inimical to attendants and to hospital authorities. Their statements are colored by personal grievances and often by ill-will. The moral faculties are also often weakened to a considerable extent and the sense of ethics is blunted or lost, so that a searching examination should be made before admitting the evidence of insane witnesses. So many uncertainties, moreover, surround the giving of such testimony that it should seldom be received, standing alone, but should be regarded as only corroborative of testimony given by others. In other words, a lunatic's competency should be a matter of proof and accepted with caution. Formerly all such testimony was excluded. The statements as to immoral acts made by hysterical and nervous women verging upon insanity should be regarded with hesitancy; otherwise wrong may be done to the character of upright members of the community. Judgment in all such cases should be suspended until their testimony is strengthened by other and more reliable evidence.

The Supreme Court of the United States has ruled upon the subject as follows: "The general rule, therefore, is that a lunatic or a person affected with insanity is admissible as a witness if he have sufficient understanding to apprehend the obligation of an oath and to be capable of giving a correct account of the matters which he has seen or heard in reference to the questions at issue; and whether he have that understanding is a question to be determined by the court upon examination of the party himself and any competent witnesses who can speak to the nature and extent of his insanity."

Intoxications.—The various acute intoxications produced by alcohol, morphine, cocaine, and other drugs do not properly come within the scope of insanity, but continued indulgence produces a chronic mental condition which is a form of mental disease, progressive in its character, and often permanent. Mere drunkenness is no excuse for crime; in fact it was once held that, where it was voluntary, it aggravated the offence. At the present day, when a criminal act is committed through drunkenness, the degree of guilt may be modified as showing an absence of intent or premeditation. A contract may be disclaimed and voidable on the ground of intoxication at the time of its execution. Alcohol, opiates, and various drugs may invalidate documentary acts if the subscriber was so under their influence as to be incapable of appreciating the nature and quality of his act; but the assumption must be sustained by proof. The instrument itself may not be void, but it is voidable upon an action at law to set it aside. Voluntary acts of intoxication do not absolve from responsibility, but if the drug is administered as an overdose by a physician or by accident or in a weak physical condition from disease it does so relieve.

There are conditions, however, not acute, but which result from chronic alcoholism and chronic morphinism, wherein there is a mental derangement of a more or less permanent nature, often progressive, and at times ending in terminal dementia or some fixed condition of insanity. Hallucinations of sight and hearing are common, often attended with delusions of persecution. Sometimes symptoms are present resembling very much general paresis. The patient's mental state and consequent responsibility become in such cases a matter for the jury, and the test applied is the general one used in mental disease.

Modified Responsibility.—Deaf-mutes, idiots, and imbeciles are not insane, but their responsibility is variable. An act committed by an idiot or imbecile is not a crime. In such cases, however, the actual condition must be made a matter of proof. An honest difference of opinion might possibly arise in a given instance as to whether a weak-minded person should be sent to an institution for the feeble-minded, to an industrial school, to prison, or to a hospital for the insane. Uneducated deaf-mutes are occasionally accused of crime. Such a person, not being able to read and write or to talk by means of the alphabet of the fingers or by signs, is incapable of communicating with counsel or of participating in his own defence. To all intents he is in a state of nature and occupies the status of an idiot. Such persons have been adjudged irresponsible and committed to insane asylums. On the other hand, responsibility may be proved by showing the accused to have had education in special schools; that he is able to read and write; that he can converse by the sign language; that his moral sense has been developed; that he has a knowledge of right and wrong, and consequently that he has attained to a measure of understanding which renders him responsible before the law. The real status of deaf-mutes, therefore, must be determined by testimony similar to that required in cases of insanity. Their mental states, dependent upon their deprivation, being so various, each case must be determined upon its merits when questions arise concerning criminal responsibility, marriages, contracts, and wills. A deaf-mute should always have the benefit of a competent interpreter.

Epilepsy.—This condition is often attended with maniacal paroxysms. On account of the violence accompanying such outbursts, acts of homicide are often committed. From our own observation, about forty per cent. of the crimes committed by epileptics are of the nature of assault or murder. If we add rape we should increase this percentage to almost fifty, so that very nearly half of the crimes committed by epileptics are acts of violence against the person. If we consider other classes of insanity, however, in connection with epilepsy we find that the latter is not a large causative factor, as this form of disease is responsible for less than five per cent. of all murders committed by those mentally deranged. Acts of violence by epileptics are usually committed in states of fury followed by convulsive attacks of which the patient has no memory. Sometimes, though rarely, states of excitement occur unattended by convulsions but followed by lapse of memory. Dementia as a rule supervenes after long-continued epilepsy. The measure of responsibility in all such cases is the universal test which applies to all states of mental derangement.

Plea of Insanity.—The plea of insanity as a defence for crime is not always received with public favor. It is apt to be regarded as a subterfuge and an excuse for leniency, whereas if it prevails it involves, in most cases, confinement for a period of longer average duration than a sentence to a penal institution would entail. Such a plea, owing to popular prejudice, is not always accepted by the jury, and many dangerous paranoiacs are convicted and committed to prison only to be liberated at the end of brief terms to commit fresh crimes. The mental condition of prisoners should be subject to careful scrutiny, and if found to be insane they should be sent to special lunatic asylums to remain until recovery is assured. Many recidivists would thus be placed in permanent custody and our prisons and reformatories be permanently relieved of a large proportion of habitual criminals and of many dangerously insane convicts. Fortunately, the laws of several States direct the transfer to asylums for the insane of all patients whose insanity becomes evident while undergoing sentence, and permit of their detention until recovery or death. Where such a practice prevails, persons convicted of manslaughter, assault to kill, and other heinous offences, whose felonious acts are the product of mental derangement, are segregated apart from sane convicts and detained during the existence of their disease.

As a rule the types of insanity existing among those who commit criminal acts are characterized by degeneracy, are fixed in their nature, and, usually, irremediable. Self-admiration is so strong among offenders of this class that they resent any impugnment of their mental condition, but a verdict of chronic and confirmed insanity would be justified in many instances as a measure calculated to insure confinement for life. Such a course is not only humiliating but is a severe blow to their pride and arrogance, which leads them to crave notoriety as heroes and martyrs. Many so-called anarchists are really unbalanced persons whose crimes fall short of murder, but who nevertheless should be branded as insane and degenerate and who should permanently pass out of sight and mind behind the closed doors of lunatic asylums.

Henry E. Allison.

X. INSANITY, CONFUSIONAL.—The term "confusional insanity" is one used in the symptomatological classification of mental diseases and is meant to include cases possessing a definite group of clinical symptoms. It must be understood at the outset that there has been the greatest confusion in the classification of mental diseases. This is due to several causes, not the least of which is the persistent adherence of many writers and physicians to the etiological classification. When we remember that the same exciting causes apparently act in producing widely varying clinical forms of disease, and when, on the other hand, we see the same clinical disease following upon a great variety of causes, the reason for this confusion is apparent. Unfortunately, hardly any two writers use the very same scheme of classification, and our hospital reports reveal the fact that there is no uniform use of the terms defining mental disease in vogue to-day.

Definition.—Under the term confusional insanity we include those cases in which there are abundant hallucinations and consequent delusions with usually considerable mental confusion or delirium. When we consult the various text-books, we find such clinical pictures described under various terms which may be arranged as follows:

I. *Primary.*—Acute confusional, primary confusional, or acute hallucinatory confusional insanity; acute primary dementia (agitated or stuporous); delirium (acute or grave); typhomania; delirium of collapse; acute delirious mania.

II. *Secondary.*—Infectious insanity; febrile psychoses immediately following fevers, as influenza, typhoid, malaria, erysipelas, rheumatic fever; post-partum insanity; traumatic insanity; acute toxic insanity (alcoholic, etc.). Heretofore many authorities who did not employ the term confusional insanity have placed these cases under either mania or melancholia—terms decidedly overburdened in the past.

Etiology.—While I have grouped cases of confusional insanity under two etiological heads, namely, primary and secondary, I recognize the fact that the subdivision is artificial, and when our knowledge of the causes of insanity becomes complete, the "primary" cases will diminish in number and all cases will possibly be found to have a common cause.

In this type of insanity, as in other acute forms, we may expect to find a dual causation, such as a toxalbumen in the blood acting upon a predisposed, unstable, nervous system. The writer believes that this twofold etiology is all but universal in mental diseases. Medical practitioners see an endless variety of idiosyncrasies or susceptibilities among their patients to drugs or common articles of food.

It is not unreasonable to expect that there is an equally variable susceptibility to the various chemical substances which may be found in the blood, whether normal products of metabolism or the toxalbumens resulting from infectious diseases. The well-recognized fact that in the majority of insane there is a history of neurotic taint in others of the family strongly supports this view. Given then an unstable nervous system in a neurotic individual or a degenerate and let him meet with any of the many accidents which may tend to lower his vitality or be attacked with an infectious disease, we have a right to expect profound nervous disturbance. If the dose of the poison be unusually large, either from a sudden absorption by the circulation or from defective elimination, we may expect serious mental symptoms. On the other hand, the more unstable the nervous system, or the more susceptible, the more quickly may we expect such symptoms from a relatively small quantity of the excitant poison. As this factor is incapable of measurement and is always uncertain it interferes with the making of a definite prognosis. Experience shows that the history of numerous cases of mental or nervous disease in the family does not warrant a bad prognosis in a case of confusional insanity. Such a family history may indicate merely an unusual instability or susceptibility to a trivial exciting cause and recovery may be rapid and complete.

Clinical History.—The onset of symptoms is usually rapid. They may occur with startling abruptness. The prodromal symptoms are restlessness, insomnia, or sleep is broken by disturbing dreams, irritability, headache, and some mental confusion. In women we often see some hysterical symptoms. This evidence of a loss of self-control must not be slightingly considered, as it may be the forerunner of serious mental disturbance. One of the first symptoms to be noticed is hallucinations of one or more of the senses, usually of more than one. Hallucinations of hearing and sight are especially common. Consequent upon the hallucinations are delusions. The patient hears voices in the room or the wall, or overhead, or the next room, which tell of distressing things about to happen—that the patient is to be burned or killed, or that his soul is lost, or his children are to be tortured, or his loved ones ruined; that his friends are to prove false, he is to be financially ruined, etc., etc., or he hears pistol shots or the noise of fire engines. Hallucinations of sight of the same nature add to his distress. Strange forms—robbers, monsters, officers of the law, forms of the departed, the figure of God, the Virgin, or the dead—appear before him. A rapid shifting of these hallucinations gives rise to various delusions and sudden acts of violence and attempts to escape on the part of the patient. Suicidal and homicidal attempts are not uncommon during this delirious condition. Friends and members of the family are not recognized; the physician is taken for an enemy or the Evil One. The hallucinations and delusions are not always persecutory, although more commonly so. They may be of a hypochondriacal nature. The patient may believe he has no stomach or he is dead.

Or the hallucinations may be of a religious or erotic character. A woman believes she has been assaulted and outraged, or she has seen the Saviour and He is to make her His bride. Hallucinations of all the senses may be looked for, and we frequently find the patients complaining that poison or filth has been put in their food or foul gases are injected in their room.

The delusions of these cases are as a rule transient and change with the hallucinations. They are not fixed as in the cases of primary delusional insanity (paranoia). The delusions are more freely talked of soon after the onset of the disease and gradually fade, while in primary delusional insanity there is an evolution of the primary or chief delusion, and it is talked about more and more as the disease progresses.

Some patients, however, will not express their delusions. We can observe merely a suspicious attitude and we can only infer the presence of hallucinations and delusions from the patient's behavior, which expresses fear, terror, a capriciousness or change in conduct toward those about them. Such a case may first attract attention by jumping from a window, and it is not always possible to decide at once whether this was an attempt at suicide or a frantic effort to escape from some imagined harm.

There is almost always seen some confusion of mind. There is incoherence of ideas, a failure to recognize friends or surroundings (disoriented). Mistakes of identity are very common. This essential symptom may be of all degrees from a simple haziness of comprehension, a misunderstanding resulting from the hallucinations, to complete delirium with no memory of the illness remaining upon recovery. There is, as a rule, a partial memory

of the events of the illness upon recovery. Patients often remember their coming to a hospital and say that for some weeks it was a blank, or there may be almost a complete memory of the events connected with the period of alienation. Occasionally the delusions may persist after the hallucinations have disappeared and the patients have in other respects recovered. Such cases often are very troublesome, as they repeat stories of abuse during their illness after they have apparently recovered, and even after they are able to return to their homes they blame their friends or physicians for an improper commitment. They retain a vivid recollection of the necessary restraint exercised by nurses or friends and persistently refuse to see that such methods were needful or humane. As a rule, however, the delusions fade with returning health, and a reasonable attitude is taken.

The progress toward recovery in curable cases is not always uniform. There may be several relapses to the confused state during convalescence; the saner periods ("lucid intervals") may be short, or the periods of confusion, usually two or three, may be separated by longer intervals of comparative sanity. Occasionally, there may be a daily alternation of sane and insane periods extending over a period of weeks. This is sometimes so marked as to suggest malarial infection.

The course of this disease in recoverable cases varies from a few weeks to a year. It is seldom less than two months and is often more than six. While the majority of patients recover, in the more severe cases death ensues from exhaustion. In the class of cases described as *acute delirium* death is almost certain. In other cases a chronic insanity follows—it may be a chronic deluded condition resembling paranoia or there may be a tendency to dementia.

This disease is chiefly one of middle life, occurring between the ages of twenty-five and fifty. But no fixed age limit can be set as it is evident that the conditions of an unstable nervous system and the introduction of noxious substances into the circulation may occur at any age. This condition may be seen during old age, though it is not common. It is noticeable that while children are especially subject to infectious diseases, the occurrence of this type of insanity in children is very rare. Yet children are especially liable to a brief febrile delirium in the course of infectious diseases.

While I have attempted to give a brief and general description of this malady, it must be borne in mind that individual cases show a great variety of symptoms or a predominance of one group over others, and it is perhaps true that no two cases present exactly the same clinical picture.

In some of the younger cases, occurring soon after puberty, we are apt to find a stuporous condition, which, for a time, may be so prominent as to mask or suppress the essential hallucinations or delusions. This class of cases (*acute primary dementia, curable*) exhibits a profound stupor or passivity. There is marked cerebral anæmia, and evidence of a sluggish circulation. The patient lacks the initiative and will make no effort to eat until food is placed in his mouth, and he may even not swallow then. He neglects the calls of nature and will lie passively all day long. The cataleptic condition may ensue. There are dilatation of the pupils, diminished reflexes, and cold surface.

There is no resistance as is seen in melancholia. This condition may result from a mental shock or from any physical cause producing exhaustion or anæmia, such as parturition or febrile disturbance or trauma.

The stuporous condition disappears and more active symptoms supervene and we see for a time the hallucinations, delusions, and excitement as already described. We may see one or more relapses into the stuporous condition before recovery takes place.

Acute or *grave delirium* or *typhomania* is, fortunately, a rare condition and may fairly be considered to be an extreme type of this affection. There is always an elevation of temperature which may be due to the infection of pneumonia, tuberculosis, measles, etc. It is the most severe form of maniacal delirium seen. It may come on very suddenly, so that if the patient be seized while among strangers it may never be possible to identify him. Death is the rule after a brief and severe illness, averaging about ten days, the delirium becoming muttering and later giving place to coma. It is probable that this grave form will soon be classed with the infectious insanities, and it may be that it will be found to follow infection of the cocci.

Insanity is a frequent complication of the infectious diseases both during and after the febrile movement. It is seen in variola, typhoid fever, scarlet fever, measles, pneumonia, cholera, erysipelas, rheumatic fever, influenza, diphtheria, multiple neuritis, phthisis, or any of the inflammatory processes.

In the majority of cases the symptoms are those of confusional insanity.

The delirium may precede the rise of temperature (*initial delirium*), but more commonly occurs during the height of the febrile disturbance. Such a delirium may occur in those who possess a normal brain stability. In such cases there is a serious poisoning from the toxalbumens and an impoverishment of the brain cells from the circulatory and nutritive disturbance. But in those possessing marked nervous instability delirium may accompany a low temperature. Febrile deliria, though characterized by the hallucinations, delusion, and great confusion seen in confusional insanity, are by common consent not deemed a true insanity, although psychologically and clinically they may not be distinguished from confusional insanity.

If with the subsidence of the febrile movement the delirium persists, or at this time makes its appearance, we have clinically another variety of the psychosis which is described as *post-febrile delirium* or *insanity*.

In these cases the mental symptoms are not so evidently the result of the febrile condition. While it is true that the toxins are still a factor, the exhaustion of the brain cells is also a potent one. Under these conditions one may see a short delirium with great excitement and extravagant or distressing delusions where the patient takes no notice of surroundings, and, if the exhaustion is not fatal, recovery taking place within a few weeks (*collapse delirium*). Or there may be a less furious mental disturbance running the slower course of confusional insanity as described.

The complication of the puerperal condition with any form of mental disease, whether mania, melancholia, hebephrenia, paranoia, or confusional insanity, is loosely spoken of as puerperal insanity. The last mentioned is the form of insanity described in the books as the type of puerperal insanity, or mania, and is more precisely described as *post-partum insanity*.

Much has been written upon this distressing condition and its occurrence is very alarming and naturally causes the greatest anxiety for the family as well as for the patient. Many of these cases are simply an infectious insanity and run a short course. Since the general use of antiseptics in midwifery this trouble is undoubtedly less frequent. This complication is undeniably seen when the parturition has been free from a considerable rise of temperature. It is highly probable that the exciting poison is distinct from that which supposedly causes a rise of temperature, and this acting upon a brain impoverished by a diminished blood supply or impaired by months of worry and anxiety (arising from poverty or illegitimacy of the child, *e.g.*), with insomnia, produces mental alienation. The course of the disease is similar to that described, and all the varieties occur.

It is imperative that the child be taken from the mother at the earliest intimation of trouble, both for the child's safety and to relieve the mother from any annoyance. Where there is active delirium and a possibly brief course of trouble, home treatment may be tried, but only with sufficient assistance from nurses to allow constant attention upon the patient. Such care is, as a rule, impossible for financial reasons, or, in densely populated districts, the annoyance to the neighbors is too great to be endured,

and one is driven to resort to unduly radical measures to keep the patient quiet.

Delirium tremens is so generally considered to be a disease entity that its consideration will be found elsewhere. It is clinically to be regarded as a special variety of confusional insanity with a well-known exciting cause and especially characterized by hallucinations of sight and delusions of a distressing character.

Confusional insanity is also the result of poisoning by other toxic substances, as morphine, ether, chloroform, cocaine, etc. The term "toxic insanity" is commonly used to describe acute mental disturbances due to poisoning by these drugs.

Differential Diagnosis.—While the term mania, as often used, includes those cases here described as confusional insanity, it is more accurately used to define a condition of exhilaration or good feeling, with great motor activity and restlessness with an increased flow of ideas, in which hallucinations and delusions may be present, but delirium and confusion are not marked. Mania comes on slowly and begins before the age of thirty years, is apt to recur and is a comparatively rare disease. There is in mania an hereditary predisposition. Melancholia, which is closely allied to mania, begins slowly often after an attack of neurasthenia, is characterized by a primary depression of spirits; the depression is not secondary to distressing delusions, and there are self-depreciatory delusions; orientation is good. It does not tend to follow febrile delirium. As in mania there is a tendency to recur.

In paranoia there are fixed delusions without confusion. Paranoiacs, however, are subject to exacerbations of excitement, which may for a time be mistaken for attacks of confusional insanity. A close study of the case will soon remove all doubt.

There is frequently some difficulty in differentiating the short excitement and semi-delirious conditions seen in cases of general paresis or other organic brain disease. Observation and careful study of these cases will soon reveal evidence of gross brain disease, and the diagnosis may then be established. When the onset of general paresis is sudden and follows a febrile disturbance, as it does not infrequently, a positive diagnosis is impossible at the outset.

Prognosis.—The prognosis is, as a rule, favorable except in the severe cases of the most acute form of delirium in which the exhaustion is so profound as to cause death or in which it may be affected by the complication of a physical trouble.

If there is a fair stability of the nervous system, recovery from the mental symptoms, with the exceptions mentioned, may be looked for. The best index to recovery is an increase in bodily weight, and it is important to keep a weekly weight chart for consultation. The increase in weight is often very rapid, sometimes five pounds a week for several weeks. In women a return of the catamenial flow is an index of restoration of the physical health, and if the mental condition does not improve simultaneously or very soon after the physical improvement, there is reason to fear a terminal dementia or chronic insanity.

Recovery should take place within a year or so, at most, from the appearance of mental symptoms. If there is no decided improvement within fifteen months, the case may be said to have become chronic. The hallucinations with confusion may continue and *chronic confusional insanity* results, which like other acute vesanic tends toward a decline of the mental powers with a terminal dementia which is of various degrees.

In a certain proportion of cases the confusion disappears, but the delusions, which are more or less fixed, may persist and we have a chronic delusional insanity with a less rapidly ensuing dementia.

Or the stuporous condition may recur or persist and lead to a chronic dementia. It is assumed that the inherent strength of the neurons is weaker in these cases and they are incapable of restoration.

Treatment.—The place for treatment must be early considered in every instance. If the case is very acute and there is reason to expect a short illness, home treatment, if practical, should be advised. It must be admitted that the fact of commitment to a hospital for the insane does affect the business and social status unfavorably, although this prejudice is often very unjust and unreasonable. Home treatment should not be attempted without the assurance of abundant and competent nursing aid, which is necessarily expensive. In the majority of cases, however, it will be found necessary to resort to treatment in a hospital especially equipped for the care of the insane.

The exhaustion calls for prompt and assiduous measures. Frequent and regular feeding is all-important. It may be that artificial feeding by means of a nasal tube will be required, but it should not be resorted to until all attempts to persuade the patient to take food naturally have failed.

The food should be simple and re-enforced with stimulants, especially alcohol. If feeding and bathing do not induce sleep, hypnotics may have to be used, but their use is to be deprecated unless absolutely necessary. Bromides, trional, or sulfonal should be tried first. Rarely in an acute delirium a few doses of morphine with atropine subcutaneously, may be necessary to induce a brief rest. This should not be used repeatedly, but be followed by the hypnotics. Frequent feeding with liquid food, with small amounts of chopped meats and repeated small doses of alcohol will often induce a natural sleep, especially if supplemented by warm baths or sponging. Attention should be paid to the rapid elimination of poisonous products by aiding the bowels, kidneys, and skin to throw off their excretions.

At first rest in bed is essential. To accomplish this, forced detention in bed often becomes necessary. This may be done by the nurses holding the patient, but preferably by mechanical restraint, as a sheet, or more rarely by some bed harness.

If the patient must be held for any considerable time by others, there is a liability to increased exertion and resentment on the part of the patient, who is more apt to yield to the inevitable of mechanical restraint. The excitement and fear are increased when the patient is held in the grasp of others.

After the stage of exhaustion is past and food is taken well, tonics, as iron, strychnine, and phosphates, are called for. Bodily weight should be watched as it is the best indication of improvement. A quiet environment away from the presence of over-zealous and well-meaning friends does much to promote recovery. Strangers can usually do better for a patient who is not in an unconscious state than can members of the family.

Edward B. Lane.

XI. INSANITY: ALCOHOLIC AND DRUG INTOXICATION AND HABITUATION.

I. Alcoholism.—*Causes.*—The causes of drinking are infinitely varied and intimately bound up in the heart of man—at once an expression of his strength and his weakness, his successes and his failures. The habit is usually begun in early life, before the age of thirty,[1] and in some cases, fortunately, is renounced at the alcoholic climacteric[2]—from forty to sixty-five. Those who yield to its seductions and become its slaves have usually a neuropathic constitution, either inherited or acquired, and it is in this class of persons that alcohol works its worst ravages. Either as the result of inherited defect or the effects of severe mental or physical stress, such as illness (typhoid, syphilis, la grippe), injury (trauma capitis, sunstroke, shock), worry (domestic infelicity, financial reverses), the physiological crises (puberty, menstruation, pregnancy, lactation, etc.), the individual feels an organic craving for assistance in the struggle for existence, and, yielding to alcohol, is wooed by the blissful euphoria it brings into repeated and finally confirmed indulgence. Some are quickly destroyed by the poison (*alcoholic selection*[3]), others resist its ravages for a long time only to yield in the decrepitude of old age or as the result of accidental conditions. Although standing, as

it does, next to heredity as a cause of insanity (eighteen to twenty per cent. in males[4]), we still find it not infrequently as an effect. Indulgence in alcohol is especially apt to be an early symptom in general paresis and often is prominently in evidence in the recurring maniacal attacks of circular insanity.

Symptoms.—The immediate effects of alcohol taken to excess are exhibited in the phenomena of *drunkenness*. In this condition there is a preliminary period of stimulation of short duration, during which there is slight increase in both mental and physical power. This increase, however, is often more apparent than real[5] and is followed by symptoms of abolition of function which affect the nerve centres from above downward,[6] the highest centres being paralyzed first, the lowest last.[7] Thus in the early stages of intoxication there is a loss of the sense of propriety, the moral tone is degraded, the faculty of attention lessened, and capacity for mental work decreased. This condition becomes worse and is followed by lack of muscular co-ordination, manifesting itself first in the hands and facial muscles, and the muscles controlling articulation, the speech becomes thick, the gait unsteady. Disturbances of sensation appear, such as tinnitus aurium, diplopia, and the senses of touch and pain are lessened. If the paralyzing action of the alcohol is still further increased coma results, which may prove fatal.

The mental condition during intoxication is usually one of boisterous exaltation—*exalted type*[8]; but certain individuals are affected in an opposite way and are downcast and lachrymose in their cups—*depressed type*.[8] Among certain predisposed neuropathic individuals (*déséquilibres*), however, alcohol does not produce these typical results but gives rise to conditions of *pathological drunkenness*.[9] In this condition hallucinations and delusions dominate the field of consciousness, the depression may be so profound as to result in suicide, or, on the other hand, the maniacal form may issue in a wild destructive homicidal frenzy. Muscular co-ordination in these cases may be remarkably well preserved, and such persons are said to get drunk in their heads and not in their legs. In this category belongs also the *convulsive drunkenness of Percy*.

Once confirmed in the use of alcohol the individual starts on the downward path toward complete mental and physical decay, in reality a premature senility[10] of mind and body. The effects of the poison are exhibited in every organ of the body, more particularly the central nervous organs, stomach, pancreas, liver, kidneys, and blood-vessels, and give rise to characteristic symptoms as a result, the most prominent of which are tremor, gastric catarrh, arteriosclerosis, albuminuria, and progressive mental enfeeblement.

The effects on the nervous system are shown in disturbances of sensation, motion, and the intellect. The *sensory* disturbances are paræsthesia (pricking, tingling, formication), hyperæsthesia and hyperalgesia, occurring usually in patches, and anæsthesia also of patchy distribution but sometimes affecting only one side (*the hemianæsthetic form of Magnan*[11]). The sensory disorders of the special senses involve principally the eye and ear, producing illusions and hallucinations, muscæ volitantes, photopsia, amblyopia and amaurosis, diminution of the acuteness of hearing with the production of subjective noises (hissing, ringing, roaring, etc.) due to middle or internal ear disease.

The *motor* disturbances are tremor, spasms and cramps, epileptiform attacks (*alcoholic epilepsy*), general motor enfeeblement with paresis (*alcoholic pseudo-general paresis*).

The *mental* changes are gradual and progressive, the intellect is obtunded, the judgment overthrown, the moral sense blunted, and mendacity appears in its most bizarre forms; delusions may develop, the most characteristic of which is that of marital infidelity and jealousy (*Eifersuchtswahn*) and the patient sinks gradually into a condition of permanent mental enfeeblement (*alcoholic dementia*).

Aside from this gradual mental enfeeblement which occurs as a result of chronic alcoholism, much more pronounced mental symptoms often appear and constitute veritable psychoses. These psychoses are, however, all tinged by the symptoms of mental defect to a greater or less degree.

The most frequent and characteristic disturbance of acute alcoholism is *delirium tremens*. This disorder usually occurs as the result of a prolonged drunken debauch during which the patient has had insufficient food and rest. It may, however, appear as the result of a single excess or in the moderate drinker following a traumatism or the initial symptoms of an acute illness. The disease may appear suddenly, but there is generally a prodromal period during which the patient is nervous, with coated tongue, suffering from anorexia, restlessness, tremulousness, disturbed sleep, and insomnia. This contremulousness, disturbed sleep, and insomnia. This condition rapidly advances with the onset of the attack, the characteristic symptoms of which are rapidly developed. They are tremor, delirium, and albuminuria.

The *tremor* involves more particularly the small muscles of the hand, face, and tongue, but may also affect the entire musculature. It is increased by muscular tension, such as forcibly spreading the fingers apart.

The *delirium* is an acute hallucinatory confusion (*halluzinatorische Verwirrtheit*). The predominating hallucinations are visual and characteristically take on the form of animals (*Thiervisionen*). The patient sees all sorts of horrible creatures, snakes, rats, mice, alligators, etc., which are uniformly in motion. Surrounded by the loathsome creatures, and by horrible grimacing faces, terrified by screams and shrieks (auditory hallucinations), he presents a picture of abject terror. In addition to these symptoms the patient may complain that insects or worms are crawling under his skin (paræsthesia) and mistake spots upon the bed or walls for bugs, mice, etc. (illusions). At the height of his excitement the patient is in constant motion, picking insects from his nightdress, repelling the approach of terrible animals, shrinking from fearful visions, startled by terrifying shrieks, and, in the extreme frenzy of his fright, he may make murderous assaults on those about him, believing them to be his enemies, or more commonly attempt his own life to escape from his horrible surroundings. During all this time the patient is constantly talking, shrieking in fear at times, at others carrying on an incoherent discourse with imaginary persons fragments of which often relate to his former occupation and friends. Physically he is in a condition of acute exhaustion. The pulse is rapid and of low tension, the temperature normal or only slightly elevated (occasionally high, the *febrile delirium tremens of Magnan*), the body bathed in a profuse perspiration and constantly agitated by muscular shocks and tremors.

Albuminuria is found in a considerable proportion of cases, probably considerably over fifty per cent.,[12] during the early stages. At the height of the delirium *leucocytosis* has been found.[13]

Sommer[14] sums up the symptoms of delirium tremens under seven heads: (1) confusion; (2) the numerous sense deceptions, especially in the visual field and particularly the zooscopic; (3) great motor unrest; (4) the tremor of the hands and the shaking of the whole body; (5) albuminuria; (6) a duration of about three and one-half days; (7) termination in a long sleep.

Occasionally one sees cases ushered in by all the typical prodromal symptoms, sweating, atonic dyspepsia, restlessness, tremor, præcordial distress, anxiety, and disturbed sleep which do not proceed to the typical condition of mental confusion with multiform hallucinations. This is the so-called *abortive type*, the *delirium sine delirio* of Döllken.

The disease is of good *prognosis*, terminating in from three to ten days in a long, refreshing sleep. After repeated attacks a residual delusional state is apt to be chronic.

Continued indulgence in alcohol may give rise to various other psychoses much less characteristic of their origin than delirium tremens. Thus we have *acute alcoholic mania* (*mania a potu*)* and *acute alcoholic melancholia*. Neither presents markedly distinctive features, a fact which separates them from the simple vesanias. They are, however, usually of sudden incidence, equally sudden subsidence, and of short duration. Their diagnosis must depend on the history and the coincidence of the symptoms of chronic alcoholism—viz., arteriosclerosis, albuminuria, tremor, gastritis, fatty heart, hepatic cirrhosis, polyneuritis, paresis, anæsthesias, etc.

The *melancholia* may be very profound, amounting to stupor, and the patient may present marked suicidal tendencies.

The *mania* is apt to be marked by its explosive character, a violent frenzy being initiated by slight causes, during which the patient is extremely dangerous, often destructive and homicidal.

Both varieties tend to present hallucinations, both visual and auditory. Recovery may be complete or followed by signs of permanent mental enfeeblement in the midst of which delusions manifest themselves more or less clearly in accordance with the amount of intellectual reduction.

More characteristic of chronic alcoholism are the delusional psychoses which develop and constitute a *paranoid* state variously designated as *chronic delusional insanity, alcoholic pseudo-paranoia, chronic alcoholic insanity* (symptomatically a form of the *hallucinatorische Wahnsinn* of the Germans).

This psychosis may come on suddenly in a chronic alcoholic as the result of an unusual excess, or it may be of gradual evolution. It is characterized by hallucinations, auditory and visual predominating, with delusions of a persecutory nature in which the sexual element is frequently prominent. Throughout, impaired judgment, poor memory, and general intellectual enfeeblement are prominent factors which prevent the elaborate systematization of the delusions as in paranoia, although a feeble attempt at this is discernible.

Whether of sudden or gradual onset the first symptoms are generally hallucinations with which persecutory delusions are intimately bound up. The patient hears voices making all sorts of inimical remarks, telling him that his children are not his own, calling him an onanist, reviling or threatening him. A voice is sometimes referred to the epigastrium (epigastric voice[15]), and in every way his persecutors annoy him by their malign comments. Visual hallucinations, if they occur, are equally unpleasant. Hallucinations of smell and taste are not infrequent and are, the author believes, to a considerable extent dependent upon morbid conditions of the mucous surfaces in nose, mouth, and pharynx.

The delusions of this state harmonize well with the hallucinations. The patient is persecuted by invisible enemies who inject noxious vapors in his room at night, poison his food, draw off his semen, and produce nocturnal pollutions. He believes his wife unfaithful, and will often complain that she brings men home to the house, and even go so far as to say that she has performed the sexual act with strangers in his presence, showing well the great impairment of judgment.

It must be remembered in this connection that the delusion of marital infidelity and jealousy may not be accompanied by any noticeable degree of impairment of judgment and mental enfeeblement, and in these cases it may be extremely difficult to make a differential diagnosis between alcoholic insanity and true paranoia.[14] Particularly is it difficult to recognize paranoia with subsequent or coincident alcoholic indulgence.

In this state of persecutory insanity, the patient may be alternately fearful of impending danger, have anxious and angry states, and only too often reacts by attacking his supposed persecutors. In this condition he becomes a most dangerous, homicidal lunatic, and, under the influence of the delusion that his wife is unfaithful to him, may commit wife-murder.

Occasionally the constant persecutions receive, as in paranoia, a delusional explication founded on egoistic exaltation. If so many persons and such powerful societies (Free-masons, Jesuits, etc.) are interested in his downfall, he must be an important personage, king, ruler, who is to be put down that some pretender may usurp his place. Thus is developed a veritable megalomania.

The prognosis in this paranoid form of alcoholic insanity is not good. If alcoholic excesses have been continued a considerable time after the development of paranoid symptoms, or if the insanity has been preceded by several attacks of delirium tremens and the alcoholic state is well established, the delusions are apt to persist; the mental condition issues progressively into dementia. If, on the other hand, the symptoms are of rapid evolution and immediately on their appearance alcohol is withdrawn they may quickly disappear, only to reappear, however, on the occasion of renewed excesses.

On a groundwork of mental enfeeblement the alcoholic may develop a true expansive delirium which, combined with the signs of alcoholism (ataxia, speech defects, tremor, pupillary anomalies, and muscular weakness), may make the distinction from paresis difficult—*alcoholic pseudo-paresis*. The similarity to paresis is noticeable even when the expansive delirium is absent in cases in which the mental reduction is marked, but becomes greatest when the symptom complex above outlined is ushered in by epileptiform or apoplectiform attacks.

The distinction from true paresis can usually be made. Pupillary inequality is more common and the permanent results of apoplectic insults (hemiplegia, aphasia) more often found in the alcoholic form than in the true.[16] The results of polyneuritis should be looked for and if found suggest alcoholism. The most reliable differential sign is found in the course of the two maladies. True paresis is progressive, tending toward ever-increasing degradation, while in the alcoholic form removal of the poison results very shortly in a remission of all the symptoms, even, in some cases, amounting to a recovery. The symptoms, however, reappear subsequently if drinking habits are returned to.

As a result of chronic alcoholic toxæmia, the symptoms of which are marked throughout by their explosive character, it is not strange that actual convulsions, *alcoholic epilepsy*, should complicate the morbid picture. These convulsions, so far as their individual characteristics are concerned, are indistinguishable from true epilepsy. Occurring, however, in a person beyond the period of adolescence who is addicted to the immoderate use of alcohol, their origin should be suspected. The diagnosis is made clear if they cease upon the withdrawal of alcohol. As this sometimes does not occur the diagnosis can be made only by excluding the causes both of true and symptomatic epilepsy other than from alcohol.

In this connection it is interesting to note that about ten per cent. of alcoholics are thus afflicted[17]; that the convulsions in epileptics the children of alcoholics begin four and one-half years earlier[17] than in those whose parents are not thus addicted, and that alcohol aggravates the true epileptic neurosis.

Less common and more unusual effects of alcohol are the conditions of so-called *trance, automatism, double consciousness, spontaneous somnambulism*, which are followed by *amnesia*. In these conditions the subject of alcoholism may do almost anything imaginable, make contracts, transfer property, commit criminal acts, take long journeys, enter into complicated business or professional transactions, and later have absolutely no knowledge of what he has done. During a protracted debauch the subject may suddenly start off on a journey and travel for hours or days under an assumed name, meanwhile conducting himself in such a manner as not to lead to any comment on the part of those whom he meets. Suddenly, without warning or after a night's sleep, he "wakes up"

* *Mania a potu* and *delirium tremens* are terms which have been used by some authors interchangeably. It is, however, desirable that the term *mania a potu* should be applied only to *acute alcoholic mania*, as delirium tremens is not properly a form of mania but rather an *acute hallucinatory confusion* in which the impairment of consciousness is much more marked than in mania.