

5-1-1936

Diagnosis of psychoses due to drugs

Richard C. Kiltz
University of Nebraska Medical Center

This manuscript is historical in nature and may not reflect current medical research and practice. Search [PubMed](#) for current research.

Follow this and additional works at: <https://digitalcommons.unmc.edu/mdtheses>



Part of the [Medical Education Commons](#)

Recommended Citation

Kiltz, Richard C., "Diagnosis of psychoses due to drugs" (1936). *MD Theses*. 444.
<https://digitalcommons.unmc.edu/mdtheses/444>

This Thesis is brought to you for free and open access by the Special Collections at DigitalCommons@UNMC. It has been accepted for inclusion in MD Theses by an authorized administrator of DigitalCommons@UNMC. For more information, please contact digitalcommons@unmc.edu.

DIAGNOSIS OF PSYCHOSES DUE TO DRUGS

by

Richard C. Kiltz.

University of Nebraska Collage of Medicine.

Senior Thesis

1936.

TABLE OF CONTENTS.

| | |
|---|---------|
| 1. Introduction and General Considerations. | P.P 2 |
| 2. Classification | P.P.8 |
| 3. Psychoses due to Alcohol. | P.P.II |
| (a) Pathological Intoxication | P.P. 12 |
| (b) Delirium Tremens | P.P. 13 |
| (c) Korsakoff's Psychoses | P.P. 16 |
| (d) Chronic Hallucinosiis | P.P. 18 |
| (f) Acute Paranoid Type | P.P. 19 |
| (g) Chronic Paranoid Type | P.P. 20 |
| (h) Alcoholic Deterioration | P.P. 21 |
| 4. Psychoses due to; | |
| (a) Opium and its derivatives | P.P. 23 |
| (b) Cocain | P.P. 26 |
| (c) Bromides | P.P. 27 |
| (d) Barbituric Acid Derivatives | P.P. 29 |
| (e) Tryparsamide | P.P.31 |
| (f) Acetyl Saliclic Acid | P.P.32 |
| 5. Conclusion | P.P.34 |
| 6. Bibliography | |

Diagnosis of Psychoses due to Drugs.

Introduction and general considerations.

There is no group of mental disorder more important to the medical student and practitioner than toxic psychoses. There is no division here between internal medicine and psychiatry. As Strecker (1) says, "Psychiatry is not a speciality of medicine, it is medicine".

It is historical fact that at all times, the human animal has deliberately taken poisons into the body. A long time ago the burden bearers of South America, to ease their labors, ate the leaves of the coca tree. In Africa the natives used and still use the betel nut. In China, one finds the smoking of opium. As has been noted, the present civilization drinks tea, coffee, whisky and synthetic gin and smokes cigarettes. All these are poisons especially when taken in over-indulgence. As early as 185 B. C. Lysander discussed a drink that being tears exuding from the head of the poppy. Opium and its effects have been known for many hundred of years. Pliny described opium suicides. Cocaine was introduced into medicine much later than morphine. This is the drug of the underworld (1).

In considering the personality of those suffering mental aberrations due to drugs, one seems to find the ordinary conception that the individual is a weakling, a psychopathic inferior and a notorious liar. There is a question mark as to how much of the drug is taken and how much the world is "down" on him. There is often undesirable traits, the greatest being in the relation of securing the two-sided mental reaction, one half seeking relief,

the other thinking of the day the supply will be cut off. Indeed, as Norman (2) says, the chief reasons for taking the drug is to produce euphoria which demonstrates a feeling of inadequacy often lying behind excess or in more fashionable language, is an "inferiority complex". He also, as the majority of writers consider, it is the neurpathic or unstable individual who becomes the addict.

Kellum (3) gives a quite pessimistic viewpoint in the discussion of toxic psychoses. He indicates the definition as difficult, differentiation impossible, etiology uncertain and the many differences of opinion in the literature. He defines the toxic psychoses as those mental aberrations due to toxic substances of either endogenous or exogenous origin. The endogenous toxins are those introduced within, such as metabolic products in improper proportion as well as oversecretion of the endocrines. In this class we find the psychoses resulting from infectious diseases, vitamin deficiency and hyper- or hypo-glandular functioning of the thyroid, pancreas, pituitary and adrenals.

Those of exogenous origin are those toxins introduced from without and which will be considered in the paper. Because of the wide range of psychoses with little uniformity, and wide differences of opinion as to their cause and clinical manifestations, it is hardly feasible to discuss the whole field of toxic psychoses, so that only those arising outside the body will be reviewed. With regard to the psychoses introduced from without and attributed to certain substances such as alcohol, opium, cocaine, barbituric acid, etc., we find, as has been stated by Strecker (1) and Bowman (4)

that we have an abnormal or badly adjusted personality to begin with. Otherwise there would not be the use of these drugs to excess and the production of a psychosis. This leads to the conception that few individuals with normal, well-adjusted personalities use alcohol or drugs to an injurious extent, and the fact that one obtains a history of an excessive use of alcohol or drug is evidence of an abnormal personality unless it be due to accident or industrial hazards.

We have further to keep in mind that in many cases such use of alcohol and drugs is symptomatic of an underlying mental disorder. Thus alcoholism is often found in early cases of general paresis, in manic excitements or depressions and dementia praecox, Hill and Wilson (5). This fact has led to numerous false ideas on the part of general public that many times alcohol has been blamed as a cause of mental disease when it was only a result.

There is even more difficulty in trying to describe such psychoses. Not only do we often find an underlying mental disease or personality disorder as the cause of excessive use of drugs, but in other cases we find that there has been such a mixture of drugs used that we cannot clearly differentiate the symptomatology as being due to any one drug. Frequently alcoholics resort to barbituric acid derivative to get over the effect of and alcoholic debauch. The resultant psychosis is a mixture of the two. Frequently different hypnotics are used producing bizarre and indefinite symptoms.

The toxic psychoses of both exogenous and endogenous origin

are said to constitute from 10 to 15 percent of all psychoses, (I-7-6) of which those due to alcohol are far in the majority. In this instance statistics are notably misleading. The toxic psychoses are not frequently admitted to mental hospitals, but are common in general hospital and private practice.

As has been indicated before, it is not feasible to discuss all the toxic reactions, but it becomes quite important to understand their common phenomena.

The most important data concerning the toxic psychoses may be summarized according to Strecker and Ebaugh (7)m

1. Etiology is definite, usually on an exogenous basis such as alcohol, morphine, infections, endogenous disorders and delirious states associated with somatic diseases.

2. The physical findings are always important and usually indicative of definite toxic processes. Fever leucocytosis, loss of weight are particularly prominent signs. Neurologically; tremor, incoordination, reflex excitability, asthenia, ataxia slurring of speech and cerebral edema, are common findings.

3. The mental reactions are usually those of an acute delirium with characteristic behavior disorders on the basis of apprehension, hallucinations and clouding. In this respect they may be referred to as acute reactions in that the mental findings are usually transient.

4. The prognosis is good.

5. The treatment follows the line of therapeutic measures of internal medicine.

In considering the general behavior of these patients we find them extremely apprehensive, marked restless often picking at the bedcloths. At times they go through various moves signifying a

certain occupation (occupation delirium) e. g. baker mixing his dough or a tailor threading a needle (1). They often appear bewildered and disoriented. Stupor often occurs.

Stream of talk and activity. Speech is usually irrelevant and incoherent. Hyperkinesis is frequent.

Mood and Special Preoccupations. Marked affective lability is present, usually in reaction to hallucinations.

Delusions are prominent, and particularly of being killed. Usually the delusions are shifting and transient. Persecutory trends are often found.

Hallucinations are extremely common, particularly of the visual type. Auditory hallucinations occur, usually in more advanced states. Hallucinations of smell may occur. Illusions are frequent.

Sensorium and Intellectual; Disorientation for time and place and person is frequent. Memory defects are present. Definite defect of attention may explain deficiency of intellectual resources. Judgment and insight are impaired.

Physical findings in this group are of the utmost importance. The patient appears acutely ill and may show signs of collapse, with rapid irregular pulse of poor volume and with a high temperature. Marked vasomotor symptoms, flushing of the face, and sweating are frequent. There are no special pathognomic signs.

Strecker (1) presents a triad of mental symptoms which he believes a fairly accurate mental pattern.

(a) The essence of a toxic reaction with delirium implying clouding of consciousness and disorientation.

(b) Hallucinations, a component of delirium, ranging from extreme and vivid hallucinations to mild and transitory hallucinationary content.

(c) Motor restlessness, varying from slight unrest to wild and seemingly, purposeless activity.

Hill and Wilson (5) present one hundred cases of toxic psychoses entering the psychopathic ward of the Philadelphia General Hospital and show the value in the diagnosis, especially when uncertainty and liability is shown in confusion with dementia precox. Here is found great frequency of auditory and visual hallucinations with delusions and persecutions. Twenty one of this series were disoriented to the time and place, talkative and violent. Depression of a homicidal and suicidal nature were common. These writers place paramount stress on matter of physical examination for differentiation from dementia precox. The patient with toxic psychosis is more talkative and excitable, the symptoms are as a whole more bizarre than dementia precox. Thus it seems essential to consider carefully the case from the history and the physical examination to determine the existing factors.

Classification.

There is considerable controversy over the classification of mental disorders due to poisons introduced into the body from without. Under the present scheme of classification a number of divinite psychoses are included under this group, although many question whether or not they really belong there. For example, alcoholic paranoia is felt by many not to have any real relationship to alcohol. White (8) in his discussion on alcohol describes an alcohol pseudo-paranoia, exemplifying the confusion that may occur.

The basis for this classification is that certain substances taken into the body may effect the mental set-up and even produce an actual mental disorder. Such mental disorders are considered to be due to the effect of this substance on the nervous system. There are a number of points, however, to be kept in mind. No drug produces exactly the same effect upon all persons. Many times an individual has a marked or unusual reaction to a drug which is regarded as due to the makeup of this individual rather than to the effect of the drug. The viewpoint has been propounded by the majority of the writers reviewed in this thesis. Thus it will be seen that in all drug psychoses, the makeup of the individual will in part, determine the psychosis. It follows from this the wide range of manifestations due to mental aberrations due to mental aberration of drugs and the equal futility of adopting a standard classification.

We have further to keep in mind that in many cases such use of alcohol and drugs is symptomatic of an underlying mental disorder. Thus alcoholism is often found in early cases of general paresis, in manic excitements or depressions and many similar conditions.

There is even more iddifficult in trying to describe such psychoses. Not only do we often find an underlying mental disease or personality disorder as the actual cause of the excessive use of drugs, But in other cases we find that there has been such a micture of drugs used that we cannot clearly differentiate the symptomatologh as being due to andy one drug.

The classification of psychoses due to durgs treated in this paper must then be prepared on a arbitraty bases for as Strecker and Ebaugh (7) say, "There is no dividing line". The trouping then will be a result of a composite of various authors but will bollow more closely the outline as give by Bowman (4).

Gorson (9) makes little differentiation and casts all the disorders into a toxic psychoses with a general description. Fleming (10) presents the official classification fo mental disorders of the Roual Medico-Psychological Association with an etiological and clinical grouping. In his etiological case he divided the disorders as being due to chemical, infective and metabolic disorders. Bleuler (11) seems to treat toxic psychoses and those psychoses due to exogenous poisons as simultaneous. White (8) gets by very nicely by calling toxins either endogenous or exogenous. There-fore much of the classification will be drawn from Bowman (4) of Harvard supplemented by the other writers and is thusly presented.

I. Psychoses due to Alcohol,

- (a) Pathalogical Intoxication.
- (b) Delirium Tremens.
- (c) Korsakoff's Psychoses.
- (d) Acute Hallucinosiis.

- (e) Chronic Hallucinosia.
- (f) Acute Paranoid Type.
- (g) Chronic Paranoid Type.
- (h) Alcoholic Deterioration.

2. Pshchosas due to-

- (a) Opium and Morphine
- (b) Cocaine
- (c) Bromides
- (d) Barbituric Acid Derivatives
- (e) Tryparsamide
- (f) Acetyl Salicylic Acid.

Psychoses due to Alcohol.

Alcohol is the cause of a certain number of mental disorders. Strecker and Ebaugh (7) with Miles (12) suggest from five to ten percent while Ballard (13) finds ten to fifteen percent of psychoses dependent on alcohol in this range, it has been said (14) that alcoholic psychosis is a disorder of middle age, seventy five percent of the cases occurring between thirty to fifty five years.

There is still so much controversy as to the effects of alcohol that it is difficult to arrive at a calm, dispassionate, scientific attitude. There are a large number of cases commonly called alcoholic psychoses, including, Pathological intoxication, delirium tremens, acute hallucinosis, Korsakoff's psychoses, paranoic condition, chronic deterioration, and several less common types. Henderson and Gillespie (6) with Bleuler (11) raise some disagreement as to the place of the acute alcoholic hallucinosis as a proper alcoholic psychosis, contending as an acute schizophrenic reaction released by alcohol in a predisposed individual.

Never the less, it may be said that under the headings given, we have a series of fairly typical psychoses which, with the exception of pathological intoxication, occur in individuals who have used alcohol to excess over a long period of time. For this reason as well as the fact that the official nomenclature adopted by the American Medical Association as well as mental hospitals and medical societies, use this scheme of classification, we shall follow it in our discussion of the alcoholic psychoses (4) (16).

The diagnosis of alcoholic psychoses should be restricted to those mental disorders arising, with few exceptions, in connection with chronic drinking. The description will be found as a composite

mainly of comprehensive reviews of the subject by White, Strecker and Ebaugh, Henderson and Gillespie and Bowman.

An introductory, condensed outline of the chronic, alcoholic disorders is given by Ballard(13) which he divides into two types of manifestations, the psychic and the physical. In the psychic type are found general and rather common symptoms of diminished judgement, intellect, and work capacity, dullness, negligence, imperfect realization of acts, disorders of memory, irritability and impulsions associated with moral atrophy and indifference to responsibility. Of the physical signs are found; disturbances of sensation with amblyopia, parathesias, tremors, possibly epileptiform attacks, gastro-intestinal symptoms of anorexia, painful digestion or constipation.

The following alcoholic reactions may be clinically differentiated.

Pathological Intoxication

Of course, as in all the alcoholic psychoses, a history of imbibition is necessary for a diagnosis.

There is an acute mental disturbance due to large and sometimes small amounts of alcohol and manifesting over a short period of time, excitement or furor with confusion and hallucinosis followed by amnesia. Lenchen (15) especially stressed the symptoms of amnesia.

In this condition, hallucinations and delusions are found dominating the field of consciousness, the delusions usually being of a persecutory character. In other cases the excitement may issue in a wild maniacal frenzy with anxiety or rage, or the depression may be so profound as to result in attempts at suicide. Of the amnesia, the patient may wander away, as Kellum(3) calls a twilight sleep, and wake up hours later with no

recollection of what has happened. The latter has been described by an anonymous writer in the Medical Journal of Australia(18). The condition is most comparable to the epileptic clouded states and fuges and then must be clinically differentiated.

The diagnosis then is commonly made on the history of drinking, the disorientation, the unmotivated fears and anger and the hallucinations. The excitement differs from that of an ordinary drunkenness where the patient will usually go to sleep if he can be gotten to bed. The above states last from a few minutes to a few hours.

Delirium Tremens

Delirium tremens is much the most common type of alcoholic psychoses. It is difficult to estimate the percentage of cases as compared to the total number of alcoholic psychoses due to the fact that most of the true alcoholic psychoses become patients in state hospitals, whereas the majority of cases of delirium tremens are treated in general hospitals or at least away from the state hospital. The estimates of different authorities vary from a ratio of 4 cases of delirium tremens to 1 of acute hallucinosis to 34 to 1.

Delirium tremens occur most commonly after thirty years of age in view of the fact that chronic alcoholism is necessary. Males are attacked more frequently than females, mostly because chronic alcoholism is more prevalent among males, but according to some authorities, females are more likely to develop the acute hallucinosis or Korsakoff picture rather than delirium tremens.

Racially, the Irish seem particularly predisposed to the alcoholic psychoses.

As the name implies, delirium tremens is a delirium with tremors. The onset is variable. Most commonly it comes on gradually over a period of a few days. In the acute stage the patient is commonly confused and out of contact. Sometimes the picture is one of an occupational delirium. There is often an acute hallucinatory confusion.

Disorientation is often quite complete, the patient, although fastened in bed, may believe himself to be in his office or home, surrounded by familiar faces. The predominating hallucinations are visual and characteristically take on the form of animals e. g. snakes, rats, mice, alligators, etc., which are uniformly in motion. Surrounded by the loathsome creatures and grimacing faces, terrified by screams and shrieks, he presents a picture of abject terror. Furthermore, the patient may complain of insects or worms crawling under his skin (parathesia) and mistake spots upon the bed or walls as 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 creatures; in the extreme frenzy of his fright, he may make murderous assaults on those about him, believing them to be enemies or, perhaps 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. If spoken to sharply, his attention can

often be gained, and it may be possible to reassure him temporarily.

The mood, too, may be quite different, but is usually one of fear of a terrifying environment, but they may be calm, interested, mildly elated and joking about the hallucinations seen. One patient quoted by White, was highly entertained by the appearance in the ward of a man with a monkey's body walking along the floor in a barrel, the bottom of which had been knocked out.

Physically he is in a state of acute exhaustion. The pulse is rapid and of low tension, the temperature normal or only slightly elevated, the body bathed in a profuse perspiration and constantly agitated by muscular shocks and tremors.

During the course of the disease almost any experience the patient may have, any impression made upon his sensorium is woven into the warp and woof of his delirious experience and sensory flight of ideas. Hallucinations seem to arise spontaneously which do not appear to be determined by psychological factors but rather by simple physical causes. Often they are easily produced by simple pressure on the eyeball or merely by getting the patient to look at a blank piece of paper.

The patient nearly always shows tremor of the tongue, face and small muscles of the hands. It is commonly of a coarse rapid type. Occasionally it may be so marked as to interfere with walking, eating or other activities. The pupils are commonly dilated and often in reaction. The speech may be thick and indistinct. The reflexes may be hyperactive or absent if peripheral neuritis is present. Albuminuria is present in at least half the cases and signs of kidney involvement are frequent. Epileptiform attacks may occur.

Gastritis is a common symptom producing vomiting and loss of appetite as well as distress.

The psychosis runs an acute course of about three days and terminates in recovery in the majority of cases. The delirium usually ends in a long sleep. About ten to fifteen per cent die.

From the above subjective and objective findings, the diagnosis of delirium tremens is usually easy to make. There is commonly a history of chronic alcoholism and the typical delirium makes the picture obvious. With a history of chronic alcoholism it is something of an academic point whether a delirium with infectious disease should be called delirium tremens or not. One important thing to be kept in mind is that the presence of delirium tremens does not rule out other diseases. Particularly every case of delirium tremens should be suspected of having general paresis until proven otherwise. Even when the mental and neurological findings are not suggestive, a lumbar puncture should be done. One will then be surprised at the number of general paresis or neurosyphilis which would otherwise be missed.

Korsakoff's Psychoses

The term, Korsakoff's psychosis, although now commonly applied to one type of alcoholic psychosis, was originally described by Korsakoff some sixty years ago. Many of the cases described by Korsakoff were not cases of alcoholism but the type of mental picture described was often seen in senile psychoses, in general, in arteriosclerosis and other organic psychoses. However, the term "Korsakoff's psychosis" is now limited to the alcoholic cases

and other types of cases are said to show a " Korsakoff syndrome.

The onset is somewhat variable, the most common way for the disorder to start is for a chronic alcoholic to develop an attack of delirium tremens. Instead of clearing up in a few days, the individual passes over into the peculiar mental state of the Kosakoff psychosis and the neuritic symptoms likewise develop. The psychosis seldom appears in individuals below forty years of age, and is more common in persons over fifty years of age. It is thought to be more common relatively in women than in men.

The most outstanding and typical symptom is a memory defect which is replaced by fabrications. The patient superficially may appear normal and such a gross intellectual disorder is found only on careful questioning. The memory loss is great; the individual cannot remember where he was the day before; although he has been in the hospital for months, he may give an elaborate account of business transfers. These gaps in memory (anterograde) are narrated in great detail and with a perfect appearance of lucidity. In many cases the fabrications can be suggested by leading questions and the patient may be led to make almost any statement, no matter how contradictory. Commonly there is no insight. In the beginning, the patient is usually excited, overactive and euphoric. Hallucinations are rare.

Physically, the patient typically has all the signs of a polyneuritis which of course differs in its distributions according to the etiological factors. In the alcoholic type, which is the most common, wrist- and foot-drop are characteristic symptoms.

The diagnosis, then , may be based on the characteristic falsification of memory with confabulation and usually disorientation

with foot- and wrist drop. Paresis is to be distinguished by the absence of polyneuritis.

Acute Hallucinosiis

In the majority of cases, there is a mental disorder with an acute auditory hallucinosiis with a fairly clear sensorium, marked fears and more or less systematized persecutory delusions. The hallucinations are characteristic, auditory predominating, thus contrasting strongly with the visual hallucinations in delirium tremens(8) (13). The hallucinations are dreamlike and usually of threat, persecution, defamation and in men of a homosexual nature, while in women there are accusations of criminality and infidelity(14). The delusions are also of a persecutory nature and show a tendency to systematization but is of a rapid growth and loosely organized. Grandiose delusions do however, occasionally occur, though they are not sufficiently controlling to modify the picture in any essential way. Illusions are not uncommon especially in the chronic drinker(16).

The patient is clear mentally and in good contact with his surroundings, in contradistinction to the confused state of delirium tremens. The mood is usually one of fear and is in the relation to the hearing of all sorts of threats. He is depressed, apprehensive, may have anxious and anger states, and often reacts by attacking his supposed persecutors. The patient often time is brought into the hospital because he has gone to the police for protection from his enemies. Bleuler (11) emphasizes that these voices of the hallucinations usually discuss the patient in the third person and he makes this an important point in the differential diagnosis.

There are comparatively few physical signs in the typical case. Tremor is characteristically absent and there are few physical signs of a toxic state.

The condition may continue acutely for a number of days or even weeks. In some cases there will be a temporary cessation of the hallucinations, usually with some improvement of mood for the time being. In such cases the condition may become essentially chronic and be drawn out over a period of weeks.

The diagnosis from delirium tremens is made by the absence of disorientation and by the marked prevalence of auditory hallucination in the form of threatening voices. From paranoia the distinction is made by the very rapid systematization of the delusional system, as opposed to the slow evolution in that disease.

Strecker and Ebaugh(7) add an additional class of chronic hallucinosis which is practically a persistence of acute hallucinosis but the emotional reaction accompanying the hallucinations deteriorates.

Acute Paranoid Type

While many paranoid ideas are often found in cases of chronic deterioration due to alcohol, there is a rather specific type of paranoid reaction which warrants a brief description. The state is characterized by suspiciousness, misinterpretations, persecutory ideas and jealous trends. Hallucinations are not marked. The reaction clears up when alcohol is withdrawn. Delusions of various sorts may occur, but one particular type is so common as to be almost pathognomic. The patient, usually a male, develops ideas of infidelity on the part of his wife. In the beginning, these ideas

may appear only when the patient is under the influence of alcohol. After he has sobered up, he may deny having expressed such ideas. As time goes on, these delusions become more fixed and the patient finally expresses them at all times. In cases which do not show intellectual deterioration, the history given by the patient is often so logical and reasonable that one cannot be certain as to whether or not the ideas expressed are delusions. The latter viewpoint is described nicely in the novel "Asylum" by Seabrook (17).

The diagnosis is commonly made on the history of chronic alcoholism and the characteristic set of delusions. However, this delusion of marital infidelity and jealousy may not be accompanied by any noticeable degree of impairment of judgement or mental enfeeblement, and in these cases it may be extremely difficult to make a differential diagnosis between this form of alcoholic psychosis and true paranoia. Certain other paranoid conditions, especially of the involution period, may present the picture with the characteristic delusions of jealousy. Differentiation is made by excluding alcohol in the amnesias.

Chronic Paranoid Type

There is a persistence of the acute type with fixed delusions of persecution or jealousy. The patient does not recover.

Alcoholic Deterioration

The continual use of excessive amounts of alcohol over a long period of time produces certain characteristic physical and mental conditions which are best grouped under the heading of chronic deterioration.

Physically, there is commonly a dilatation of the capillaries of the face, particularly of the nose. The heart often shows myocardial changes. There is frequently a bloated look and the muscles are flabby. A chronic gastritis may develop along with cirrhosis of the liver.

The sensory disturbances are parathesia, hyperthesia, hyperalgesia and anesthesia. The sensory disorders of the special senses involve principally the eye and ear, producing illusions and hallucinations, muscae volitantes, photophobia, amblyopia and amaurosis, diminution of an acuteness of hearing with the production of subjective noises, due to the middle or internal ear disease.

The motor disturbances are tremors, spasms and cramps, epileptiform attacks and general motor enfeeblement with paresis.

The mental changes are gradual and progressive, the intellect is obtunded, the judgement overthrown, the moral sense blunted, finer sensibilities lost, the individual has a coarser personality, delusions may develop and suspicions of others may occur with the patient sinking into a condition of permanent mental enfeeblement.

The diagnosis may be apparent in some cases by a superficial inspection. In other cases it is necessary to secure a thorough history with an extensive physical and mental examination. However, when it is known that he is using alcohol and when a number of the

symptoms listed are found to be present, the diagnosis may be made safely. Alcoholic dementia is to be differentiated from other dementias largely by the history of alcoholic indulgence.

Psychoses due to drugs

Opium and its derivatives

In this work it is not intended to discuss drug addiction in all its forms. The problem of the drug addict is mainly one of prevention. When one considers the many cases of morphine and heroin addiction cared for in hospitals as well as the number which never come for treatment, the urgent need of active preventive measures is readily seen. To be sure we must study the personality of the drug addict as well as consider the effects of the habit.

Perhaps the best definition we have of a drug addict is the one adopted by the committee appointed by the British Ministry of Health in September, 1924. Their reports define an addict as, "A person who, not requiring the continual use of a drug for the relief of symptoms of chronic disease, has acquired, as a result of repeated administration, an overpowering desire for its continuance and in whom withdrawal of the drug leads to definite symptoms of mental or physical disease or disorder(4).

While in many respects the cause of the opium habit is the same as that of the alcohol habit, there have been certain differences pointed out. Alcohol is forbidden by the Mohammedans yet the use of opium seems to be accepted. It has been said(4) that the peace-loving races use opium, whereas the more pugnacious use alcohol. He points out the use of opium by the Chinese and alcoholic drink by the Japanese.

The number of opium addicts in this country is not known, with figures varying from 100,000 to 200,000. There are four male addicts to every female addict and the habit is confined to the third and fourth decades of life, relatively few being observed

earlier, and a few after fifty.

As to whether a particular form of drug addiction is practiced seems to depend on additional experience and contact as well as cultural factors. Opium smoking has never been practiced in the United States. The habit is not so easily acquired, but is easier to break off than other methods of taking opium. It also requires so much paraphernalia that detection of one using it is easier. Morphine is probably more widely used in this country, with injection by a hypodermic as being the common way.

Heroin, which is prepared synthetically from codeine, is generally considered as a stimulant thus largely used by the underworld. Heroin is also taken by hypodermic but may be snuffed into the nose to be absorbed by the nasal mucosa and making a hypodermic outfit unnecessary. All of these drugs may be taken orally but addicts generally prefer other methods. There is considerable argument as to whether codeine produces a habit. There is certainly less danger as to its use, with few cases of codeine addiction being reported.

The different derivatives of opium have in many respects, quite similar effects and although slightly different reactions, their diagnosis will be considered generally.

The symptoms of a single dose are at first those of mild stimulation of the mental faculties followed by a period of quiet, half-waking, half-sleeping, interrupted by multiform, pleasant hallucinations particularly in the opium addict. The condition is followed by malaise, headache, drymouth, constipation and nausea.

The physical symptoms of prolonged use of opium in any of its forms are; anorexia, irregular action of the bowels, constipation, diarrhea, cardiac weakness, general muscular weakness and tremor, miosis and sluggish pupils, impotence, amenorrhea, deminished sensibility, parathesias and sensations of coldness.

Mentally there is a gradual degradation. The memory and power of attention become impaired and the capacity for initiation is lost. There is a marked impairment in the ethical feelings and previous honest persons will begin by lying out of business engagements and about taking of the drug. Some persons who have been taking opium for a considerable time and in large doses develop a hallucinated state that may be of paranoid coloring or may be distinctly deliroid.

The diagnosis can often not be made without the anamnestic data. The patients frequently deny their habit—mendacity is a prominent symptom, and they are often cuts enough to find means of indulgence even when carefully watched. The moral degradation is very pronounced and any length is taken to obtain the drug. Symptoms excitig suspicion are periods of torpor and languor in marked contrast to alcoholism, amounting at times to an inability to even sit up. Occasional signs of stimulation may be seen. Thereis also small pin-point pupils, yellowish-brown, cachetic complexion, and above all, the numerous scars of hypodermic injections. In necessary diagnosis, Morphine can be recovered from the urine and stomach. Herzog (19) metions the use of Hecht's test which is an intracutaneous injection of morphine in solution of 1 to 1,000,000 which gives a reddening in a person unused to morphine.

Psychoses due to cocaine

Addiction to this drug has in a great many cases, come about by attempting to substitute it for morphine, and as a result pure cases of cocainism were formerly more rare than at present. Because of its use of late in dentistry, minor surgery and nose and throat work, a knowledge of it has become quite general.

The symptoms arising from the use of cocaine are those of marked stimulation. The pulse is increased, the pupils are dilated. The patients are active and extremely talkative, constantly busy and their whole appearance suggests an acute intoxication. The effects are however, very fleeting. Chronic addictions result in emaciation, cachetic anemia, insomnia, sometimes epileptiform attacks and various parathesias, the most marked of which is a sensation of crawling under the skin(22). Kraepelin(20) regards chronic cocainism as midway between delirium tremens and acute alcoholic hallucinosis.

In the psychic occur incapacity for mental application, lessened moral sense, mendacity, irritability, impaired judgement and often the delusion of marital infidelity. Cocaine hallucinations are said by Zucker(22) to have a typical uniformity and are rarely found in other disorders. They usually complain of small or microscopic creatures running over or under the skin. They are experienced at the same time in different sensory fields, so that the patient sees insects that he feels on his skin or under it.

From true paranoia, this state is differentiated by the greater variety of delusions, those of paranoia being less variable, rather noticeable for their monotony. In the paranoid state of

alcoholism, on the other hand, the hallucinations are more stereotyped.

The abstinence symptoms are not so severe as with morphine and may not appear for several days. A persecutory delirium may be present and persist for a long time, making the patient a very dangerous individual.

Psychoses due to bromides

Psychoses due to bromide intoxication form a well recognized group of cases, although the mental syndrome is by no means specific. These cases differ from most others due to the hypnotics, in that all of them are due to chronic or prolonged use of the drug, and particularly never to a single large dose. Bromides have a cumulative action by replacing the chlorides in the body and therefore may be retained for a long time. Cases may arise from bromides prescribed by a physician or the use of proprietary medicines. Bennet(23) reports a case arising from the use of Bromidia.

The incidence seems quite high. Of 500 admissions to the Colorado Psychopathic Hospital, is reported seven per cent due to bromide intoxication, and at the Henry Phipps Institute is reported two per cent of the cases due to bromides(24). Wagner and Bunbury in the Colorado Hospital report 1000 routine admissions, 77 showing bromide in the blood and 44 of these having mental symptoms due to, or increased by the bromides(26). Through the writing, the feeling is emphasized that one commonly finds the unstable, neurotic personality who is unable to adjust himself to life.

Ryland(28) defines bromide psychoses as a chain of neurological symptoms caused by the ingestion of large doses of bromide, which are relieved by the withdrawal of the bromide and the administration

of sodium chloride. Sollmann (25) says in general that fairly large doses of bromides depress the psychic functions and reflexes, leading to dulness and apathy. Continued administration of large doses results in bromide acne and other symptoms analogous to iodism.

One gets considerable variation in the mental symptomatology as shown by Levin (27). He divides the mental aberrations into, first, a state of mental sluggishness, second, one of delirium, and third, a state of hallucinosis. It has been said that as soon as 30 percent of the chloride content of the blood is replaced by the bromide ion, toxic symptoms usually appear (24).

The development of the psychosis progresses in the following manner. In mild conditions of bromide intoxication, the individual is usually sluggish, irritable and has little interest in his surroundings. He is usually confused, depending on the severity of the condition. It is important to remember that the mental picture is varied by the mental abnormality of the patient.

In the more severe cases of bromide intoxication, the patient is usually stuporous, disoriented and confused. Visual hallucinations are not uncommon, delusions of various sorts may occur, particularly ideas of persecution. Some may show a confused excitement, often with fear-states or great irritability. The deep reflexes are decreased, sensation is diminished, and the pupils are often sluggish in reaction but frequently dilated. The speech is thick and dysphagia may be present. Tremors and incoordination are frequently seen. Fever is not uncommon (29). Bromide rash is described

as a discrete, acneiform, pustular, infiltrated or furuncular rash on the face, neck and chest (27) but seems to be absent in the majority of cases showing marked mental symptoms.

The diagnosis is simple in some cases, but difficult in others. In cases where bromide intoxication is suspected, the urine may be tested qualitatively for bromides, or better still, the blood may be examined quantitatively by the Wuth or Belote test (31-30). The quantitative test for bromides in the blood gives a definite indication as to whether or not the psychosis is due to bromides. In any patient who shows a blood bromide of over 200 milligrams per 100 cubic centimeters of blood, it is probable that the mental symptoms are due to bromides. Those concentrations between 100 milligrams and 200 milligrams per 100 cubic centimeters of blood, the diagnosis is not easy to make. In the absence of other causes, one is entitled to assume that it is a case of bromide intoxication and to treat it on that basis. The diagnosis then rests on the existence of bromide intoxication as shown by the Wuth or Belote tests. Psychosis beginning after the prolonged use of bromides and the clearing up gradually in two to six weeks after the discontinuance of bromides. It is important to differentiate this psychosis from an underlying neurosis or psychosis.

Psychoses due to Barbituric Acid

Derivatives.

Barbituric acid and its derivatives form a large group of hypnotics which are being used more and more, not only by physicians

but as means of self-medication. The forms most widely used are barbital (veronal), phenobarbital (luminal), and other proprietary preparations such as amytal, sodium amytal, allonal, and other similar preparations. Barbital and allona are mostly used by individuals for self-medication and hence by those who form a habit and is often used with morphine or extreme alcoholism. The basis upon which a habit is formed is much the same as describe under bromides. The emotionally unstable individual, the individual suffering from insomnia, chronic headaches or chronic pain, the individual recovering from an alcoholic debauch- all are likely to develop the habit of using barbituric acid (32-33). There is comparatively little increase in dosage and there are no withdrawal symptoms. However, Cold (34), reports a death occurring after 300 grains of barbital were taken over a period of four weeks. Certain forms are more cumulative than others. Phenobarbital is probably the most cumulative.

Under extreme doses the patient is in coma with the deep reflexes abolished. Often he cannot be aroused. If he can be aroused, the speech is thick and incoherent. There is marked ataxia and incoordination and nystagmus, particularly of a lateral type is commonly present. There is marked confusion. In milder conditions the patient may be restless and overactive. Hallucinations may be present and the mood one of fear or irritability. There may be a delirium of a confusion type. There may be a defect in memory with emotional weakness. The deep reflexes may be exaggerated. As in other types of drug poisoning, the personality of the patient may be determine as to the symptoms which appear with resultant

great variation of symptoms.

There must be a differential diagnosis made from, brain tumor, excluded by a careful neurological examination and the previous history, of trauma, by history, diabetic coma, by blood urine sugar, encephalitis lethargia, by history or absence of findings of drugs in vomitus, blood or urine (35).

Psychosis due to Tryparsamide.

The following two discussions on the psychosis due to tryparsamide and acetyl salicylic acid are presented not because of frequent and clear cut cases but to emphasize the fact that those in medical practice must be on guard at all times for less frequent manifestations arising from some of our more commonly used drugs but which are felt not to cause toxic symptoms.

Tryparsamide has proven a valuable drug in the treatment of various forms of neurosyphilis. In spite of enthusiastic endorsement that the drug has received in some clinics, there remain many places not using the drug, not because of its value but of the complications upon its administration. Greatest emphasis has been placed on possible eye damage. Hoverson (36) believes eye damage is over emphasized and after a review of 200 patients in contrast to six patients presenting symptoms of toxic psychoses, a phenomena not yet described in available literature. Because these symptoms occurred in individuals without such symptoms and because they occurred during tryparsamide medication, it was believed these observations were due to the accumulative effect of tryparsamide.

The psychosis in such cases is abrupt in onset, mental reactions undergo a change in a few hours or a few days. The reaction is of

delirium, the person is confused, partially oriented and unable to interpret the events of his environment. There is additional vivid hallucinations (auditory) or visual fear reactions with restlessness and overactivity. With removal of the offending agent, there is abatement with recovery.

One of Hoverson's cases is shown briefly. The patient had been given 20 injections of a lipoidal substance followed in turn by tryparsamide in weekly injections for three doses of one gram, two grams and three grams. Subsequent to the last injection, the patient became delusional, impulsive and combative. In a few days, eventual recovery. Of the six cases presented, there was an obvious mental similarity in all of the patients. All occurred after larger dosages with the reaction subsiding after tryparsamide was no longer given.

Psychosis due to Acetyl Salicylic Acid

Acetyl salicylic acid is commonly as a drug of low toxicity so that large doses are frequently given without untoward symptoms. For this reason, a report(37) of a psychosis apparently precipitated by a larger dosage is of interest.

The patient was a woman of 44 years with history of neuritis of the arms. One week before admission, she was placed on 180 grains of acetyl-salicylic acid for five days. On the third day, the patient showed signs of a psychosis.

On admission, the patient was disoriented, ideas of reference, ideas that the attendants were trying to poison her, clouded sensorium, auditory hallucinations and little insight.

Physically there were no signs of salicylic poisoning. Two days after the drug discontinued, the mental condition cleared with no further hallucinations and the abnormal ideas faded away with excellent insight. She was a little confused as to the exact nature of her ideas and felt she had been in a delirious from which she had recovered without complete memory for everything which had happened. The psychosis cleared up for ty-eight hours after the drug was discontinued.

Conculusion.

In summation, it is of value in differential diagnosis to compare the picture of drug delira and alcoholic delirium.

The hallucinations are visually of the same content and results of reading tests are practically identical. Superficially there is a great difference. In alcoholic delirium, there is a dilatation of the peripheral vessels with a tendency to cyanosis. One often finds evidence of anxiety and fear and the pulse is more marked. The tremor is marked in alcoholics in contrast to the slight and inconsistent movements in drug delirium. In considering the general responsiveness, alcoholics are usually not dull and with a natural expression to the casual observer. In the drug addict, there is certain dullness and difficulty in being aroused. There is a tendency of confabulations in alcoholics while in the drug user there is a lack of convabulations with retintive faculty little changed (38).

Such mental disorders are considered to be due primarily to the effect of this substance on the nervous system. There are a number of points, however, to be kept in mind. No drug produces exactly the same effect upon all persons. Many times an individual has a marked or unusual reaction to a drug which is regarded as due to the makeup of this individual rather than to the effect of the drug. Thus it will be seen that in all drug psychoses the makeup of the individual will, in part, determine the psychosis. The personality of the individual must always be studied and treatment must take into consideration as well as the drug. Furthermore, identical doses of the same drug may effect an individual differently on different occasions.

With regard to drug psychoses, we find that in most cases we have an abnormal or badly adjusted personality to begin with. Otherwise there would not be the use of these drugs to excess and the production of a psychosis. This leads to the conception that few individuals with normal well-adjusted personalities as alcohol or drugs to an injurious extent, and the fact that one obtains a history of an excessive use of alcohol or drugs is evidence of an abnormal personality, unless it be due to accident or industrial hazards. We have further to keep in mind that in many cases such use of alcohol and drugs is symptomatic of an underlying mental disorder. Thus alcoholism is often found in early cases of general paresis, in manic excitements or depressions and many similar conditions. This fact has led to numerous false ideas on the part of the general public so that many times drugs have been blamed as a cause of mental disease when it was only a result.

Bibliography

1. Strecker, E.A. ----- Toxic Mental Reactions.
Med. Clin. N. Amer. 12: 956-960, 1929.
2. Norman, H.J. ----- Alcohol and Drug Addiction.
Lancet. 2: 954, 1928.
3. Kellum, H. J. ----- The Infection, Exhaustion and Toxic Psychoses.
U. S. Vet. Bur. Med. Bull. 2: 369-370, 1926.
4. Bowman, K. M. ----- Practitioners Library, Neur. and Psy.
D. Appleton-Century Co. N. Y. pp.349, 1936.
5. Hill, F.C. and Wilson, G.-----Toxic Psychoses.
Am. Jour. Med. Sc.. 177: 569-574, 1929.
6. Henderson, D.K. and ----- Textbook of Psychiatry.
Gillespie, R.D.
Oxford Uni. Press. pp. 40, 1932.
7. Strecker, E.A. and ----- Pracical Clinical Psychiatry.
Ebaugh, F.G.
P. Blakiston's Son & Co. Philadelphia.
pp. 159. 1931.
8. White, W.A. ----- Outlines of Psychiatry.
Nervous and Mental Disease Pub. Co.
Washington, pp. 285, 1929.
9. Gorson, S.F. ----- Classification of Minor Neuroses and Psychoses.
Jour. Med. Soc. N. J. 26: 6, 1929.
10. Fleming, G.W.T.N. ----- Classification of Mental Disorders.
Brit. Med. Jour. I: 991, 1934.
11. Bleuler, E. ----- Textbook of Psychiatry.
Macmillian Co. pp. 299, 1924.
12. Miles, W.G. ----- Present Status of Alcoholism.
Jour. South. Med. and Surg. 97: 178-179, 1935.
13. Ballard, J.W. ----- Alcoholic Psychoses.
Del. State Med. Jour. 7: 89, 1935.

14. Pollack, H.M. and Brown, F.W. ----- Recent Status of Alcoholic Mental Diseases.
Ment. Hyg. 13: 614, 1929.
15. Lemchen, B. ----- Differences of Reactions of Alcoholics.
Ill. Med. Jour. 66:181, 1934.
16. Fleming, R. ----- Psychiatric Concept of Acute Alcoholic Intoxication.
Am. Jour. Psy. 92: 89-100, 1935.
17. Seabrook, W. ----- Asylum, 1935.
18. Anonymous, ----- Chronic Alcoholism.
Med. Jour. Aus. 2: 840, 1934.
19. Herzog, A.W. ----- Medical Jurisprudence.
Bobbs-Merrill Co. Indianapolis, 1931, pp. 753.
20. Kraepelin, E. ----- Lecture in Clinical Psychiatry.
William Wood and Co. N. Y. 1906. pp.188.
21. Hoch, A. ----- Rev. of Neur. and Psy. 4: 103-108, 1906.
22. Zucker, K. ----- Nature of Functional Disturbance in
Cocaine Hallucinations.
Lancet. 225: 1479, 1933.
23. Bennet, A.E. ----- Psychosis from Bromidia.
J.A.M.A. 79: 1049, 1922.
24. Harris, T.H. and Hauser, H. ----- Bromide Intoxication.
J.A.M.A. 95: 94-96, 1930.
25. Sollmann, T.H. ----- Manual of Pharmacology. 1922, pp. 877.
26. Wagner, C.P. and Bunbury, D.E. ----- Incidence of Bromide Intoxication.
J.A.M.A. 95: 1930.
27. Levin, M. ----- Bromide Psychoses.
Annals Int. Med. 7: 712, 1933.
28. Ryland, C.P. ----- Bromide Intoxication.
Virg. Med. Monthly. 61: 292-294, 1934.

29. Andrews, M.S. ----- Bromide Psychoses.
Virg. Med. Monthly. 57: 305, 1930.
30. Wuth, O. ----- Rational Bromide Treatment.
J.A.M.A. 88: 2014, 1927.
31. Wile, A.J. ----- Bromide Intoxication.
J.A.M.A. 89: 340, 1927.
32. Cohen, L.H. and ----- Physiological Manifestations of Phenobarbital
Gildea, E.F. Intoxication.
Arch. Neur. and Psy. 31: 1284, 1934.
33. Gillespie, R. D. ----- Dangers of Barbiturates.
Lancet. I: 345, 1934.
34. Cole, W. ----- Acute Barbital (Veronal) Poisoning.
J.A.M.A. 80: 374, 1923.
35. Seymour, W.Y. ----- Veronal Psychosis.
U. S. Vet. Bur. Med. Bull. 2: 1159-1161, 1926.
36. Hoverson, E.T. ----- Psychosis associated with Tryparsamide.
Am. Jour. of Syph. and Neur. 19: 217-222, 1935.
37. Bowman, K.M. ----- Psychosis from Large Doses Of Acetyl Salicylic Acid.
Jour. nerv. and Mental Diseases. 78: 57-60, 1933.
38. Hoch, A. ----- Delirium Produced by Drugs.
Rev. Neur. and Psy. 4: 103-104, 1906.