Outlines of Psychiatry

INTRODUCTORY LESSONS

Designed for the use of
Students of Medicine

BY

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PREFACE

These lessons contain the substance of lectures delivered to the senior class of the Medical Department of St. Louis University during the first semester of the college year. They are intended as an introduction to more extended text-books of insanity, and as an aid to a better understanding of cases of mental disease presented in clinical demonstrations. They cover only the more important parts of the subject. It is hoped that in this form these "Outlines" will lighten the student's task and awaken his interest in a branch of medical study that is too often thought to belong exclusively to the alienist.

AUTHOR.

LESSON I.

Introduction.

Insanity is a condition of mind that is strikingly or demonstrably at variance with the normal and usual conditions of mind manifested by the majority of individuals of like race and training, which can be shown to have a pathologic cause.

Disease of the mind, mental disease, mental unsoundness, lunacy, alienation,—are the common synonyms of insanity.

Psychiatry is the science of insanity, including symptoms, pathology, psychopathology, diagnosis, prognosis, treatment, etc., and is in contrast with psychology; just as pathology is in contrast with physiology.

The mind is a manifestation of activities that have their seat in the cortex of the brain; therefore all modifications of usual or normal mental states must be due to unusual or abnormal activities or conditions of the cortex of the brain.

Insanity is a symptom of disease; but in common language insanity is spoken of as a disease, just as paralysis, though only a symptom, is often called a disease.

Technically, temporary disturbances of the mind like the delirium of fever, drunkenness, somnambulism, etc., are not considered insanity, because of their short duration;

but they are none the less abnormal mental states due to cortical disturbance, and the frequency with which they form the beginning of a formal insanity shows how necessary it is to study them.

If all forms of insanity are symptoms of disturbances of the activity of the cortex of the brain, it does not follow that all lesions of the cortex inevitably cause insanity. Often focal or circumscribed lesions of the cortex have little or no effect on the mind; but diffuse lesions of the cerebral cortex are practically always attended by mental disturbance, and therefore it may be theoretically concluded that insanity is the result of diffuse pathologic processes or conditions affecting the cortex of the brain.

The pathology of the cerebral cortex and the insane states of mind have thus far defied every effort to bring them into relation. In other words, no one can tell from the state of the cortex observed at autopsy what the mental symptoms were during life, except in the most indefinite way; as, for example, dementia, or general loss of mind, predicated from general cortical atrophy.

The reason for this lies in the fact that there is yet no knowledge of the nature of the normal processes of which mind is a manifestation. Many forms of insanity are made up, not of signs of loss of mind, but of disturbances of relation of elementary mental phenomena, which taken singly do not differ from those normally manifested; and they are therefore necessarily as inscrutable as normal mental phenomena.

Alienists and jurists alike deplore the lack of a satisfactory definition of insanity—one that would serve in pathology and in the courts. In the nature of the case none can ever be made. The jurist demands a definition that will

enable him to decide the question of moral responsibility, which the law declares absent in insanity; the alienist seeks a definition of insanity that will fit every case of mental alienation, and render it possible for a novice to make a diagnosis of insanity.

There is no reason to think that a common ground of accord will ever be found: the need of one side is moral and therefore ideal; the need of the other side is material (physical); the two cannot be harmonized.

The symptomatology of insanity is practically and theoretically infinite, and no definition from a medical point of view can ever be more than a very indefinite generalization.

The courts will continue to decide the question of moral responsibility by philosophic principles; the alienist will continue to study symptoms of abnormal activity of the cortex of the brain.

A medical witness should never attempt a definition of insanity in a court of law, but limit himself to consideration of the question of mental symptoms as indicating disease of the brain; or as simulated to cause a belief in the existence of insanity.

The existence or absence of moral responsibility is a question about which an opinion may be expressed at request. There are cases in which no doubt exists: idiots and some profoundly demented individuals have no more moral responsibility than a newborn infant. The difficulty arises in cases in which the mind is active; and in such instances a decision concerning the existence of moral responsibility or freedom of the will must rest on opinion rather than upon fact.

Insanity is very often a plea put forward as an excuse for crime; and thus arises the difficulty for the medical

witness. A specious kind of simulation of mental symptoms is very easy for almost anyone, and therefore real and assumed insanity may appear very much alike to the inexperienced observer. This is not alone true of insanity; it is observed in many other kinds of morbid symptomatology. It is especially true in cases of physical injury, when pecuniary responsibility of a railroad company, a municipality, or an accident insurance company, is involved. The problem in these cases is easier to solve because there is always a physical basis (objective) of examination; while in a case of insanity, the physical basis is often wanting, and judgment must be founded on subjective symptoms only. However, the successful assumption of insanity is possible only in one well-versed in knowledge of mental disease; for the forms of insanity, from a clinical point of view, present well-defined characteristics in development, course, symptomatology, and termination, knowledge of which permits a skilled observer to distinguish with more or less facility between the spurious and the real symptoms.

Insanity is often attended by physical symptoms which call for careful study and treatment. There are symptoms of a physical kind that depend directly on the nervous system; there are others that indicate abnormal function of the various organs of vegetative life,—nutrition, digestion, circulation,—which must be studied either as cause or effect.

The influence of the mind on the body is so real that it must always be taken into consideration in the study of disease, and all the more when abnormal mental states are the predominating symptoms of disorder of the organism.

A mental shock, sudden sorrow, financial disaster, disappointment of expectations, may induce a state of depression that arrests temporarily many of the organic functions—

appetite, digestion, muscular tonicity with consequent relaxation of the muscles, voluntary and involuntary—which, if continued, leads to malnutrition, anemia, and marked loss of weight. Inactivity of the organic functions is prone to cause conditions favoring the development of poisons (auto-intoxication) in the system, as a result of defective oxidation and elimination; and toxines thus developed only serve to augment the original depression of the mental functions.

But defective elimination, oxidation, etc., arising primarily in the vegetative organs, are capable of inducing by means of auto-intoxication, states of mental depression, which again react on the vital functions, and thus impede a return to the normal state.

On the other hand, a state of exaltation of mental feeling may be the result of mental shock, or of exogenous or endogenous intoxication, either directly, or following a primary state of mental depression. The immediate effect of such a state of exaltation on the bodily functions is seen in an exaltation or facilitation of them: the circulation is accelerated; the appetites of all kinds are increased; the facial expression is livelier; the muscle-tone is increased; so that there results over-expenditure of physical force with loss of weight, because waste is in excess of assimilation.

Mental disorder, while always a manifestation of disease, must be considered always with reference to two causal factors: the exciting cause and the inherent condition of the individual. One person is an easy prey mentally to almost any disturbing factor; another supports almost any psychic shock without disturbance of his mental equilibrium. Practically, this difference can be appreciated only after the event.

Again, there are certain causes of insanity which act independently of individual predisposition,—pre-eminently

syphilis as a causal factor in the production of paretic dementia, or paresis so-called.

In the category of persons predisposed to insanity as a result of inherent conditions, are those that develop an insane condition without apparent external cause. It is these cases that make clear the importance of heredity as a cause of insanity.

In certain cases of insanity without appreciable cause, we are at once led to incriminate the ancestry; and it is true that in many such cases a presumable origin in some bad inheritance from parents or others further removed, may be found. However, it is not always possible in such cases to justly blame ancestors, and theoretically a cause is sought in some congenital defect of organization of the nervous system, the cause of which escapes detection, but which must be regarded as congenital, because indications of defective mental development were apparent in the earlier years of life. By a natural process of reasoning, cases of insanity that present symptoms like those seen in cases of hereditary or congenital defect, are placed in the category of those commonly called *degenerate,* even when a history of heredity is wanting.

Degeneracy is a term very broadly applied. In general it means a condition of development, mental and physical, that leaves the individual short of the attainment of the average mental and physical development of his race. In many such cases a lack of mental balance is manifested, which in certain cases becomes genius, in others imbecility or insanity. As a rule, mental and physical degeneracy go hand in hand; that is, imperfections of physical development and defects of psychic development are observed in the same individual. This is a rule, not a law. Many individuals present defects of physical development without any sign of mental degen-

eracy, and *vice-versa*: the presence of one is not a demonstration of the other. When both are observed in one person, they can be regarded as correlated to the general defect of organization of the individual.

LESSON II.

Historical Review.

Hospitals or asylums for the insane are of much earlier origin than hospitals for bodily disease, unless means for the treatment and care of patients offered by the followers of Esculapius are regarded as hospitals. Doubtless there were certain material means for the protection of the sick in the immediate neighborhood of shrines and oracles.

In the City of Lourdes, in France, there is a modern example of what the ancient Grecian shrine for the treatment of disease must have been, only modified in some details for the care of those that fail to obtain relief. There, as in ancient times, cures are the result of supernatural intervention; there, those that are concerned with the thousands that come yearly to the shrine for relief or cure, have become good observers, diagnosticians in a sense; as were the disciples of Esculapius, who finally made possible a truly scientific observer—Hippocrates.

With him the study of diseases of the brain began; but we have far to go before insanity is generally recognized to be a result of disease.

Mental troubles were long attributed to demoniacal possession, and cure was sought by means of exorcism, etc. Success in a certain number of cases following such treatment, was a certain proof that those that were not sound mentally,

were objects of evil influence or demoniacal possession. Along with a belief in demons as causes of insanity, there was also the notion that the changes of the moon exerted an influence to cause mental unsoundness. Hence come the terms, still in use in England and the State of New York, lunacy, lunatic. The supposed influence of the planets on human destiny is perhaps as old as the world itself.

The dawn and development of Christianity brought no change of knowledge of abnormal mental conditions. The evil spirits or planetary influences of earlier times were still regarded as the causes of mental alienation, though their names had changed. Still worse, and as an everlasting proof of the frailty of the mind of man, was the belief that the operations of demons were directed by individuals. The prevalence of a belief in demonology and witchcraft is responsible for the torture and death of nine millions of human beings in Christian Europe during the Middle Ages.

Disease, owing to absence of knowledge of the material aspect of life, continued to be regarded as a supernatural matter for centuries; the dawn of the light of science was prolonged through ages, and even now it would be hazardous to attempt to prove that we are in full light of day.

The first asylums for the care of the insane as subjects of disease, were built by the Turks. In Christian countries insane persons were looked upon as criminals and treated accordingly for centuries after asylums for their care were established in lands of Moslem faith. This is not surprising if it be remembered that medical science was highly developed among the Arabs long before Galen sought to interpret and improve the observations of Hippocrates.

Society has always been forced to take some care of the insane, not for the sake of such unfortunate beings, but for

its own protection. Ordinary invalids excite pity, but are inoffensive and may be left to themselves; insane persons are often dangerous, and almost always so considered. Thus the nature of insanity forced its public recognition because of its tendency to disturb society, and confinement of the insane or their separation from society was a necessity recognized from the first.

During the Middle Ages the insane were confined in jails or dungeons, and there made to endure punishment or wear shackles intended for criminals; there their lot was worse than that of common malefactors, owing to their inability to conform to discipline, and their blind raging against mechanical restraint. Often chained in a dark cell they were left to wallow in accumulations of filth during months and years, starving or living on food passed to them as to a wild beast.

During the dark ages of religious fanaticism the millions of human beings sacrificed to appease popular superstition were not all insane, as might at first view be concluded; rather the insane of certain categories were the incitors of persecution of sane and inoffensive persons. The hysterical and those suffering with delusions of persecution were most frequently the accusers of innocent persons, who thus fell victims to popular ignorance and fanaticism. For a universal belief in demons made the populace ready to accept as truth the delusional accusations of anyone against anybody, if the accusations were in harmony with the prevalent superstition. Doubtless, as was the case in Salem, certain insane or peculiar persons often became the object of accusation, and thus the victims of popular hatred.

Insane delusions and ideas are always in harmony with popular beliefs or prevalent notions. To-day the remnant

of early insane ideas of demonology is seen in the religious delusions of the insane, which still meet with acceptance by persons religious and ignorant; but insane ideas of persecution now most frequently have to do with electricity—the telephone, batteries, etc., and we shall soon observe patients whose ideas are concerned with the operation of X-rays and wireless telegraphy. However, the enemy remains a person or persons operating these means of persecution; just as formerly the demons were directed in their malevolence by some person or persons.

Improvement in the knowledge of insanity and in its treatment did not keep pace with the progress of medical science in general, because the mind and its manifestations remained a matter of pure speculation almost up to our own day.

Late in the eighteenth century more humane treatment was afforded the unfortunate victim of insanity; the notion that insanity is the result of disease began to penetrate the mind of the masses, and separate hospitals for the insane were established here and there in Europe. But such asylums remained the object of popular fear and abhorrence. The Bethlehem Asylum in London gave rise to the popular use of the word "Bedlam," that will remain as an index of popular estimation of what a congregation of lunatics must be.

The most remarkable amelioration of the treatment of the insane is due to Pinel, who, as physician at Bicetre and the Salpétriere, hospitals for the insane in Paris, late in the eighteenth century, inaugurated the abandonment of the grosser forms of mechanical restraint: he unlocked the shackles and chains that for centuries had been considered an indispensable part of the care of the insane. In England, some years earlier St. Luke's Hospital, for the care of the

insane, had been established in London; and at about the same epoch, Tuke established, with the aid of the Society of Friends, the York Retreat, where enlightened and humane methods were employed, and whence they spread throughout Great Britain, and to the United States. In other countries like changes for the better were made.

The development of the system of colonization of insane patients in Europe and the United States is traceable to a very old system originated in Belgium, where, at Gheel, a colony of insane persons has existed for many centuries.

At the present time the methods for the care and treatment of the insane in vogue in civilized countries, are in general uniform, though there are differences due to exigencies of revenue or other economical circumstances. The object—cure and amelioration—is sought through means the most humane, with the largest degree of personal liberty, healthy employment and amusement, and the application of all the special therapeutic measures known to medical science.

Every state has hospitals for the insane, and laws enacted for their protection, though unfortunately state hospitals are not always administered with reference to what science might do for the patients. In some states, for political or economic reasons, the county-house is still used as a place of detention for the mentally unsound; and naturally the medical attention given under such circumstances is not all that is desirable, even if abuses were not the rule in such places. However, the time is not far distant when all such imperfections will cease to exist. All state institutions for the mentally defective will be administered by competent men of scientific training, and all such hospitals will thus add to the sum of progress in scientific knowledge and enlightened treatment of insanity.

The history of psychiatry as a science can be resumed in a review of the work of observers recorded during the last one hundred years.

Griesinger's work may be taken as representing the beginning of modern psychiatry in Germany; and the science has been most highly developed by many later workers both there and in Austria. Schüle, Krafft-Ebing, and Kräpelin, among many others, may be mentioned as observers that have exerted a great influence on the science.

In France psychiatry had able workers in Pinel, Esquirol, Le Grande du Saulle and Morel; the latter is the originator of the theory of degeneracy that has exercised so great an influence on modern psychiatry, especially in Germany, and which has been carried to an extreme in the theories of Lombroso, of Turin. Modern French psychiatry has able exponents in Magnan, Bourneville, Pierre Janet, Toulouse, and Regis, who were preceded by such noted scientists as Calmiel, Baillarger, and Falret. But the early French school has exercised a much more important influence on psychiatry than its later exponents. We owe the recognition of dementia paralytica (paresis) to French observers, as well as the earliest recognition of its cause.

In Great Britain the progress of psychiatry is marked by many illustrious names, beginning with the Tukes and followed by Conolly, Maudsley, Clouston, Ireland, Savage, Lewis, and many others. The modern system of non-restraint is due to Conolly. The asylums of Scotland represent, perhaps, the highest development of the institution for the insane.

The progress of psychiatry in our land was naturally early marked by the influence of English ideas, to which we owe much, especially in humanitarian methods. In recent

years we have been guided almost entirely by the German school, until we have taken our place as original workers in the field. Now in all civilized countries the methods of care and study of the insane are practically the same: originated by the English and French schools, and developed most conspicuously by the German school.

LESSON III.

Mental Physiology.

Mind is a term that covers all that one experiences as an individual: sensations, thoughts, and acts that are recognized as taking place or having origin in oneself. Mind, then, as it can be known, is a subjective experience which can be examined objectively only through the secondary and material results of its activity. What a person feels, thinks or desires can only be known to another through movements, acts, etc. One learns to know what is passing in the mind of another by his acts: expression of face; movements of members; inarticulate and articulate sounds. Mind can only be recognized as objectively existent or studied objectively by means of its material modes of revelation. Action (movement, conduct) is to mind what a thermometer is to temperature: a measure.

Psychology is a science made up of the results of subjective and objective study: subjective self-observations and interpretations of the acts of others.

It has been established that the mind has its seat in the cortex of the brain, though general recognition of this fact does not yet date back one hundred years.

Sensation is an absolute pre-requisite for the development of mind. Mind is in reality a phenomenon interposed between what is known in biology as irritability and con-

tractility as displayed by the lowest forms of organized living matter. Irritability in the amoeba may be regarded as synonymous with sensibility. Sensitiveness to mechanical influence—contact—is the starting-point of movement of contractile bodies. Such movements are primarily those of attraction. Thus, the amoeba seeks to assimilate all that comes in contact with it, and such matter as is capable of becoming a part of the amoeba is incorporated; while such as is, for physical reasons, unsuitable is abandoned mechanically as a result of the constant movements of attraction excited by simultaneous or succeeding mechanical stimuli. But certain materials by contact are capable of exciting movements of repulsion; and thus is established the organic possibility of choice, which in its lowest form is apparently determined by material conditions, but which in its essence must depend on the vital qualities of the living organism displaying the phenomenon.

In the lowest forms of animal life are observed sensibility, movements, choice; and these attributes may be easily recognized as the same, essentially, as those observed in thinking beings: the feelings are the ultimate development of sensibility; the will is the final development of mechanical choice always expressed in movements; the intellect is a term that covers all subjective operations that take place between sensation and voluntary action; it represents in the lower orders the organic conditions that give rise to movements of attraction or repulsion.

Mind depends for its origin and development upon the senses (various modes of sensibility). An organism devoid of means of communication with the external world, dies, no matter how perfect its internal organization for all other functions. In the development of human beings, one sense,

though it be the lowest, may suffice for the development of mind, if the individual be aided and the one sense be cultivated. Witness the case of Helen Keller, who developed mentally through the single sense of touch, the lowest of those possessed by the higher orders of animals. However, all the senses are simply modifications of sensibility to contact. Sight is the appreciation of contact of light; hearing is due to contact of air in vibration; taste and smell are other modes of interpretation of contact:—all the senses are interpretations of modes of motion made possible by the development of special organs.

Special organs for the various senses require special nerve-centers for the registration of their activities. The cortex of the brain is the seat of these centers, the autonomy of which is as distinct as that of the sense-organs themselves. Destruction of a cortical sensory center as effectually destroys that sense as destruction of the corresponding sense organ; in fact, more surely, for loss of sight from lesion of the eyes does not destroy visual memory,—the record of previous visual images; while blindness due to cortical lesion causes loss of acquired visual memories and loss of power to acquire more.

This is true of every sense; for there is more or less distinct localization in the cortex of each sense. The sense of sight has its seat in the occipital lobes in the neighborhood of the calcarine fissure; the sense of hearing has its centers in the temporal lobes; the centers for taste and smell lie probably in the falciform lobe; the centers for touch are identical in the main with the motor centers which occupy the convolutions in the immediate neighborhood of the fissure of Rolando.

Besides these primary centers, there are others destined

to subserve certain qualities of one sense, or certain combinations of two or more senses. Thus the left angular gyrus is the center for recognition of written language; the left superior temporal convolution contains the center for recognition of speech. Destruction of these higher mental centers of language in no way entails blindness or deafness, but causes loss of power to understand written and spoken language.

There are other so-called senses, like the *muscle-sense* and *stereognostic sense,* which are the result of combinations of several forms of sensibility derived from various parts of the body. Analysis of the stereognostic sense or of the faculty of language shows how any single sense is of small account as a factor in the development of the mind; how mental development depends upon interrelated development of many senses.

As an illustration of the complexity of a given faculty, that of speech, which is at the very foundation of the human mind, may be taken as an example of the association of the activity of the various senses. Speech is practically impossible without hearing, and absolutely so if deafness and blindness co-exist. Reference is understood to be to congenital defect. Acquirement of speech is fundamentally dependent upon the auditory appreciation of sounds and the reproduction of them by imitation. A later or ultimate development of language is the addition of symbols or signs appreciable to sight as representatives of sounds,—written language, the highest product of the human mind. Thus language in its complete normal development is an association of hearing, movement, and sight, for which there are three distinct but associated centers in the cerebral cortex: the auditory center for speech; the motor center for speech; and the visual center

for written signs of speech-sounds. All these centers lie in the left hemisphere of the brain (in right-handed persons), and are intimately associated by nervous interconnections. Dejerine calls these three centers, found in the inferior frontal, the superior temporal, and the angular gyrus, with their fibres of association, the *"zone of language."*

No clearer illustration of the important relation of language to intellect is offered than that presented in the various forms of disturbance of speech due to various lesions of the *"zone of language."*

1. Suppose an adult has become unable to use the organs concerned in articulation: articulate language is impossible, but the subject is able to think and communicate his ideas by means of signs, written or indicated by movements; he understands spoken or written language. It is of no importance what causes the incapacity as far as internal language—thought—is concerned, if the cause lie outside of the cerebral cortex and the subcortical paths of association of the centers of the zone of language. A lesion of the larynx, of the medulla, of the motor fibres below the centers in the lower third of the Rolandic area, is without effect, beyond paralysis of articulation; the affected person understands and communicates his ideas as before, though forced to use other avenues exclusively—writing and motor signs. If he be unable to write with his right hand (paralysis), he uses his left; and if both hands be useless he employs his feet, after a bit of practice.

2. With a lesion or lesions affecting the cortical zone of language, the result is quite different. If the motor center of speech be destroyed, the individual is no longer able to express himself in words; he cannot think clearly in words, therefore he can express himself in no way perfectly; he

cannot write or read perfectly, or understand perfectly spoken language. A lesion of the auditory center of language entails likewise grave disturbance of thought (internal speech); for the individual can no longer understand spoken words, and cannot control his own words through the sense of hearing; his attempts to speak are incomprehensible jargon. Similarly, lesion of the visual center of language causes disturbance of internal language in one educated to read literal signs and to think in them; for he can no longer write or read, and the normal equilibrium established by the co-ordination of the motor, auditory, and visual centers of language, is destroyed. The memory of much that has been acquired through written signs is obliterated, and a large part of the mental store is lost.

THE STEREOGNOSTIC SENSE also illustrates the manner in which various senses or sensations serve to develop ideas. We are able to recognize, without the sense of sight, various objects or their physical qualities if allowed to handle them. Many qualities of sensory experience may be necessary for such recognition: form, nature of surface, temperature, weight, size. Certain brain lesions may entirely destroy this so-called stereognostic sense, which depends upon the various qualities of the sense of control, motion, muscular force, joint-movement, and space relation of the cutaneous surfaces.

At the base of all mental development lies what we call *memory*. Popularly speaking, memory is the ability to recall at will this or that mental image or idea; to represent in thought that which has been seen, etc. However, *voluntary memory* is a faculty that depends very largely upon two senses: sight and hearing. We may evoke a face, a form, a scene; and we may feel again the emotions experienced

under certain circumstances. The words of another, spoken or written, may be recalled with perfection of reproduction. But in general it may be said that the perfection of ideational reproduction depends on the degree or intensity of emotional activity that primarily accompanied the experience. Thus the early experiences of childhood and youth, accompanied by the most intense, unique, and isolated emotions, are those longest and most accurately evocable at will. Facts early learned by repetition are also among those most easily recalled; in part because of early impressionability, in part because of later constant repetition in experience. However, this psychologic aspect of voluntary memory, of great importance for the intellectual status of the individual, is only a higher development of involuntary organic memory.

Voluntary memory is essentially a reproduction of experience through emotion and the senses of sight and hearing; *organic memory* (perceptual) is dependent on inner unconscious registration of experiences which are not necessarily reproducible voluntarily. For example, we may be able to recall an experience of having great physical pain, as from a burn: in this we never feel again the pain, we merely say that we had a pain, and recall the circumstances attending the pain. Our inability to reproduce voluntarily this pain once experienced is parallel with our unconsciousness of the elements of organic memory. Voluntary memory reproduces an experience as a whole; organic memory is the unconscious basis on which the experience as a whole rests. To illustrate this fact, take any object, as an orange: it presents itself to consciousness through various senses—sight, smell, touch, taste—and it is recognized as an orange without the conscious intervention of any of the elements of sense-impressions that it evokes; it is recognized because other oranges

have been seen, smelt, and felt. One might have seen many oranges and never voluntarily evoke one in memory; but seen again an orange would be recognized, by reason of organic memory (perceptual). Again, to make clear this difference; a person once known is forgotten, but an effort is made later to recall face, form, and name, in vain; yet seen again the person is immediately recognized. This is enough to show the difference between voluntary and organic memory, and to emphasize organic or unconscious memory as the basis of what is known as memory. In fact the registry of sense-impressions and the unconscious association of them form the basis upon which elaborate mental development depends.

LESSON IV.

Elementary Psychology.

Psychology is the science of normal mental activity.

Since we are not familiar with the physical conditions that underlie mental phenomena, we are forced to study mind from its manner and qualities of manifestation, and thus we must constantly employ the methods and terms of psychology.

The first psychologic element is sensation. An orange presents itself to us through various avenues of sensibility, and the various sensations of which it is the external cause lead us to invest it with various physical qualities—form, size, weight, color, odor, etc. The combination of the various sensations obtained from an orange with the consequent investment of it with certain qualities that distinguish it from other objects leaves in the mind a picture, or *mental image,* which permits recognition of another orange. The recognition of the orange as an object having certain distinguishing qualities is *perception.*

The process of *perception* is always very complicated, for many elementary sensations are necessary for the formation of the simplest *percept,*—the mental image.

The reproduction in mind of the result of perception,—the mental image,—is called *memory.*

The process by which mental images, or ideas, are combined is called *thinking*, or *ideation*.

In the act of thinking the combination or association of ideas takes place according to certain laws: similarity, contrast, co-existence, succession, cause and effect.

Similarity as a factor in thought is illustrated when an idea excited by perception of an object is followed by the awakening in consciousness of the image of some similar object.

Contrast may be understood readily if it is remembered how smoothness of necessity can only be known through experience of roughness.

Co-existence: when one mental image comes into consciousness others that were developed at the same time are re-awakened.

Succession, which is understood to apply to both time and space, plays a great role in the association of ideas; the re-awakening of one idea is followed by that of others originally developed before or after it.

Cause and effect. Our notion of relation of cause and effect is fundamentally dependent upon succession of events in time. This notion of relation once developed, it becomes a source of association of ideas: a cause calls up its effect; the idea of a result known to depend on a certain cause suggests the idea of that cause.

Ideas once developed become elements of thought, and all the elementary operations of sensations and perceptions that were needed for their formation are erased from them. The highest development of ideas is in their association with words, which stand for ideas.

Judgment is a term that covers the result of thinking

that leads to some conclusion, and is thus the result of reasoning.

Memory, organic and voluntary, is absolutely necessary to any process of thought.

Percepts and ideas have another aspect: they are accompanied by *feelings.*

Feelings have two qualities, pleasureable and painful, but there may be a state that partakes of neither of these qualities, which may be called *indifference.*

Two orders of feelings may be distinguished. The lower order comprises the feelings that accompany sense-perceptions, objective and subjective (sensual); of the higher order are the feelings developed as a result of intellectual development and which are more or less of a moral nature: ethical sensibility, religious feeling, aesthetic feeling, etc.

A person is *conscious* when aware of his own existence; this mental state is called *consciousness,* and psychologically it may be defined as the sum of all the percepts, ideas, and feelings present in the mind at a given moment.

Self-consciousness, or knowledge of one's own existence as a unit distinguished from all else and knowledge of the activities of one's own mind, is the essential element of individual existence, and with it is developed the idea of the Ego. The fully developed Ego, owing to its seeming ability to act freely and independently, and from a motive of choice, is said to possess a *will.*

The will is not a primary mental function comparable with those already discussed. The will is an idea born of other ideas, which engenders other ideas, and its special character is due to its greater intensity or accentuation. It leads to acts either psycho-physical or purely psychic. We may

will to perform an act in which there is mental action and physical movement; we may direct our thought at will without any obvious physical revelation of the subjective mental act.

What we subjectively experience and understand as will, is, to illustrate the foregoing definition, the final development of the relationship between the ideas present in consciousness at a given time, modified by habit of mental reaction to ideas and feelings of certain categories.

Certain external and internal stimuli may give rise to an impulsion to a certain act, and ultimately find expression in that act: the mental process that lies between the ideas which incite to an act and conscious choice to perform it, is called *reflection.* If reflection be wanting, there can be no question of will in the act; it is an involuntary impulse, or a psychic reflex act.

The simplest form of response to an external stimulus is that known as *reflex movement.* Association of several reflex centers may suffice to form the basis of complicated reflex movements, which on the surface do not differ from a voluntary act. These complicated reflex movements may be called *automatic acts,* to distinguish them from simple reflex action; they need have no relation to consciousness, or consciousness may be entirely occupied with them.

Certain reflexes of higher organization are developed before mind, such as the instinctive movements of the infant; so that the organism lives for a long time aided only by the mechanical (congenital) arrangement of nerve centers to respond in certain ways to certain impressions—hunger, thirst, etc.

Mind with its seeming power of control of reflex, auto-

matic, and instinctive action, is thus only the highest form of development of nervous activity.

The play of ideas in consciousness determines a mental faculty known as *attention,* which we are accustomed to regard as an aspect of the will.

Psychologically, attention may be defined as the mental state of pre-occupation with certain percepts or ideas to the exclusion of others.

Ordinarily, within certain limits we are able to determine what shall occupy attention, to direct our thoughts here or there at will. This is possible only when the force or intensity of higher ideas and feelings exceeds that of lower sense-perceptions with their emotional sensory coloring. For example, the pain of a severe physical injury immediately overcomes all effort to attend to anything else. Between such a condition of forced attention and the ordinary voluntary play of attention there are infinite degrees of combination of the higher and lower determining factors.

The most important determining factor in mental activity is the feelings (emotions). Under certain circumstances the higher emotional states may exclude all lower sensory feelings from consciousness.

We have to deal with three aspects of mind: the *feelings* (emotions), the *intellect* (ideas), and the *will* (conduct); and in the study of the elementary mental anomalies of insanity we must consider them with relation to this division.

Insanity always shows disorder in these three aspects of mind, predominating perhaps in one, but always with disturbance in the others.

LESSON V.

Elementary Anomalies of the Mind. [1]

The anomalies of sensation consist of three: hyperesthesia, paresthesia, and anesthesia (various degrees of hypesthesia).

Disturbances of sensation may be due to disease of the sensory tract, end-organ, or cortical center. In general they have the significance of physical disease until the mind gives them an erroneous interpretation; then they become an important source of mental disturbance.

It is evident that anesthesia due to disease of peripheral nerves or sense-organs is not in itself sufficient to cause mental disturbance; anesthesia is observed daily in persons normal mentally who interpret the anomaly as a fact which disturbs in no way the general mental activities. On the other hand, when there is disturbance of the mind an anomaly of sensation may be interpreted mentally in some fantastic way and become the foundation of a persistent false idea. Ear-noises, to the disturbed mind, may take the form of language, and be accepted as actual speech.

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[1] A. Anomalies of the intellect.
   1. Of sensation.
   2. Of perception.
   3. Of thought.
   4. Of memory.

B. Anomalies of the feelings.

C. Anomalies of the will—conduct.

In the study of special forms of insanity there will be abundant opportunity to explain the part played by elementary anomalies of sensation in the origin and maintenance of certain mental symptoms.

Perception is the recognition of an external object by means of one or more of the senses, and presents anomalies in the form of hallucinations, illusions, etc.

Hallucination. Normally, while awake we are more or less distinctly conscious of our surroundings, and we accept the evidence of our senses without question. A sense-perception of something seemingly external that has no material existence is an hallucination. An hallucination must have its cause in the nervous system, and presumes the pre-existence in cortical centers of images of percepts. Psychologically, hallucination may be defined as the re-awakening in consciousness of an image (perceptual) with such intensity that it is projected into space. It is presumed by certain observers that with the central re-awakening of the image there is a simultaneous eccentric excitation of the related peripheral sense-organ which lends to the image further subjective attributes of reality.

Illusion is another variety of false sense-perception, allied to hallucination, though in general of less pathologic significance. An illusion is a false interpretation of the impression made on the sensory centers by something external to them. Normally it is of common occurrence: we daily misinterpret sights and sounds, and arrive at the truth only after controlling the first evidence by other evidence. We turn in the street at the sound of our name to find that the sound was not our name, but something that sounded like it. The maneuvers of the "magician" are all based upon the tendency of our senses to make illusional errors.

In mental pathology it is frequently difficult and often impossible to strictly differentiate between hallucination and illusion; and it is of small practical importance in the insane condition, because as symptoms of insanity they have practically the same significance; for this reason hallucination is the term frequently used to indicate both in the insane.

HALLUCINATION *as such is not a sign of insanity* though in its narrow sense it is probably always pathologic.

Hallucination as a symptom of insanity is invested with a mental attribute which it does not obtain in persons mentally sound: it is accepted as real (objective). Belief in the objective reality of a temporary vision (hallucination), to be evidence of an insane state of mind, must be the result of disease and not the result of education or training. Persons taught to believe in ghosts sometimes see them and afterwards believe they saw something objective: they are the deluded victims of ignorance, not of disease, and therefore not insane.

Hallucinations of *sight* occur in all degrees of complexity from the perception of simple sparks to the most complicated visions.

Auditory hallucination may also be very simple or very complex. Hallucinations of *hearing* may be in the form of noises, words, or sentences. Hallucinations of hearing sometimes lead to belief that the thoughts are stolen; the patient hears his own thoughts, and he may think that another devines and repeats them to him. Such conditions may lead to a kind of doubling of the personality: a person hears more than one voice speaking in him, and is unable to distinguish his own.

Hallucinations of *smell* are very common and usually

of an unpleasant kind; the latter may be said of those of *taste* which are much less common.

Hallucinations (illusions) of superficial (*cutaneous*) sensibility are common and take the forms of formication, tickling, electric irritation, etc. Allied to these are hallucinations of the *sense of temperature.*

Hallucinations of *movement* may depend upon anomalies in the interpretation of sensations coming from the skin, joints, muscles etc.

There are also *organic hallucinations,* in which anomalies of sensation are referred to bodily organs—the heart, stomach, liver, etc. However, the bodily organs are more frequently causes of illusions derived from pathologic processes affecting them.

Hallucinations, owing to their power to convince, have a marked influence on conduct, especially if they be often repeated or constant. In some cases of mental disease they are only occasional symptoms; in others they are constant and form the basis of all the mental symptoms. They may affect one sense or several senses simultaneously.

Perception, in contrast with the conditions of *hyperesthesia* essential to hallucination, may take place with abnormal slowness, a condition dependent on hypesthesia or anesthesia of the mechanism of sense-perception. This condition may affect one, several, or all of the senses.

Normally, perception is practically immediate; but with hypesthesia or anesthesia of the mechanism of sense-perception the percept develops after an appreciable interval, sometimes quite long. This anomaly is especially frequent in forms of organic dementia, and in melancholia. The psychic result is inability to reproduce (remember) events or sense-impressions; for sense-impressions must have a certain de-

gree of intensity to make possible their re-awakening in consciousness, and hypesthesia of sense-perception must be due to faintness as well as slowness in the process of evocation of the percept.

DISTURBANCES OF THE PROCESS OF THINKING may be classified in accordance with certain characteristics:—

1. Certain thoughts or series of mental images (ideas) may take possession of consciousness and dominate the mind absolutely. They are called *imperative* and *insistent* ideas.

All have had experience of some tune continuing persistently in thought or recurring insistently in spite of every effort to banish it. This illustrates the imperative idea, which may form a very important symptom in some forms of insanity, and lead to acts of the most insane kind.

2. ABNORMAL RAPIDITY OF THE PROCESS OF THINKING is due to increased facility of association of ideas (images), without power of control. It is essentially due to comparative equalization of intensity of all sense-perceptions as a result of which attention is directed here and there in accordance with the simplest law of association of ideas, and with a rapidity impossible when attention is controlled by the predominance of intensity of certain perceptions and ideas. The rapidity of ideational associations may become so great that confusion of ideas results—*incoherence*. In cases of this kind it is often apparent that reproduced images take control in the association of ideas, and the patient lives in a dream of a multitude of ideas, simply and rapidly associated, to the exclusion of sense-perception. When a patient lives in his reproduced ideas to the exclusion of sense-perception, he is in a state of delirium; when external impressions have power to modify his rapid association of ideas, he is said to be maniacal. Between the mild degree of ac-

celeration of ideational associations, with the usual accompanying emotional state known as maniacal exaltation, and the wild incoherence of delirium with predominance of reproduced images, lie many degrees of intensity of the flow of thought. Conventionally we distinguish *maniacal exaltation, mania, furious mania,* and *delirium.*

3. Abnormal slowness of the process of thinking is allied to abnormal slowness of sense-perception; the former is the necessary result of the latter, though there is no necessary connection between them. Slowness, or more correctly, want of play of association of ideas, exists with the imperative idea; this is the end of association,—the persistence of one idea. True slowness of thinking is either the result of slowness of sense-perception due to organic defect, or of insistence of idea. In case of organic defect the slowness of thought is actual; in case of insistence of idea, it is virtual. In the former case the slowness of thought depends upon want of ideas or percepts; in the latter the slowness or arrest of association of ideas is due to the control exercised by one idea, which does not permit percepts or ideas foreign to it to exercise their influence on the play of thought. Apparent slowness of thought is characteristic of states of depression of feeling; but delay of the process of thought in emotional depression is actual only in states of depressive stupor, in which stupor reproduces a temporary condition like that of actual physical defect of the nervous mechanism of perception and reproduction.

The slowness of thought attributed to melancholia is not necessarily actual, but rather apparent as a result of monotonous pre-occupation with ideas of a certain kind having a certain emotional coloring. This is proved by the well-known fact that after recovery, those that have suffered

with melancholia of a degree less than that of stupor have a perfect memory of all the events during their depression; furthermore, by the fact that melancholiacs accept immediately all sense-perceptions in accord with the predominating ideas, or immediately distort others to bring them into accord with the predominating depressive ideas. This is not, then, slowness of association of ideas, but restriction of association of ideas, which naturally becomes monotony and poverty of ideas, conditions of which melancholiacs often complain, and it is closely allied to the imperative idea.

The monotony of thought of melancholia sometimes makes it difficult to establish a differential diagnosis between it and dementia.

Memory is the faculty of reproduction in consciousness of percepts, ideas, and associations of ideas (concepts). This faculty presents three kinds of disorder: intensification, defect, and error of reproduction, called respectively, hypermnesia, amnesia and paramnesia.

1. Hypermnesia as an abnormal phenomenon may be understood by the variations that the faculty of memory normally presents. We can all recall times when the memory acted sluggishly and others when past impressions came into consciousness with remarkable clearness and precision of detail. This intensification of memory-pictures that occurs normally under certain circumstances, is the beginning of the milder degree of pathologic intensification of memory, which occurs in certain insane states especially characterized by increase of facility of association of ideas (mania), and in which, probably as an underlyng cause of the increase of association of ideas, there is a crowding into consciousness of memory-pictures with equalization of value of detail, so that there is a re-awakening in memory of details which

normally would make no impression on consciousness and have no effect on the association of ideas. This is perhaps best illustrated by the comparison of the camera and the resulting photograph with the mental faculty of perception and reproduction of the resulting mental image. The camera registers on the sensitive plate all details; so the senses register all details of impressions in the cortical centers. The registration of details by the camera is mechanical; so is the registration of the details made on the senses by external impressions. In the photograph objects most perfectly in focus are rendered with greatest fidelity, and give the character to the photograph; so sense-impressions induce percepts having a character dependent upon the predominating intensity or force of certain elements that fall within the "focus" of consciousness. It is these salient features (principal elements of perceptual activity) that are normally reproduced in voluntary memory; the lesser details, being without the "focus" of consciousness, are registered for reproduction in organic memory. Attention acts like the diaphragm of a microscope, to cut off certain portions of the perceptual field from entrance into consciousness. However, all details in the perceptual field are registered (photographed). When the limiting action of attention is arrested, all memory-pictures come into consciousness but without perspective; so that extraordinary avenues of ideational association are opened which thus make possible *intensification* of memory.

The voluntary exercise of memory meets with many normal obstacles which training of attention overcomes to some degree; profound and permanent defects and loss of this power are due to organic cerebral disease.

Pathologic intensification of memory (intensifica-

tion and increased facility of the reproduction of images) is comparable to dreaming. Dreams are often, if not always, characterized by the reappearance in consciousness of details which are wanting to voluntary exercise of the faculty of memory, and the play of association of ideas in dreaming may be very aptly compared to the same process as observed in mania: the intensification of memory-pictures is of the same kind—involuntary and without other guidance than that resulting from organic conditions.

2. Amnesia means absence of memory, but as commonly employed it is applied to various degrees and kinds of defect of this faculty. Amnesia may affect all or only a part of previously acquired mental images.

General amnesia, more or less pronounced, is a prominent symptom of general mental weakness. It also results from profound disturbance of consciousness from any cause for the period of the disturbance.

Temporary loss of consciousness of self is a state of loss of memory of past events of the period of its continuance.

Doubling of the personality, through the creation of two series of memory-pictures for two states of consciousness, which may alternate, is a phenomenon dependent in its beginning on loss of self-consciousness, and creation of another series of memory-pictures out of which grows the second personality.

Partial amnesias are very common. There may be loss of memory of events of early experience, with perfect memory of recent events, or *vice-versa*. In ordinary cases of amnesia the defect is for recent events, and is the rule when manifest in old age.

Retroactive amnesia is a term applied to loss of

memory for events anterior to the period of the mental disturbance which causes it, in the sense that the defect of memory is distinctly limited to a certain period. For example, a man receives a blow on the head and becomes unconscious; on regaining consciousness he remembers nothing of the period of unconsciousness, nothing of its cause, and nothing for a certain period anterior to the blow. This period may extend back hours, days, and rarely years.

LESSON VI.

Delusions.

Memory and association of ideas are at the foundation of intellectual activity, which in its higher forms is represented by concepts and judgments resulting from what we know as logical reasoning. Normally our judgments are often erroneous; we are deceived by our senses, or deceive ourselves by an erroneous process of reasoning. *Any idea, opinion, or belief that is not in harmony with facts, is a delusion. Belief in the actuality of an illusion or hallucination is a delusion.*

There are sane and insane delusions. Sane delusions are illustrated every day in erroneous beliefs based on education and sentiment. The history of the progress of mankind is a record of the dissipation of delusions—of false opinions about the material world. Sane delusions may be persistent, and usually they are very difficult to overcome if they have their root in faulty education. Formerly all Christendom believed in witchcraft; it took centuries to eradicate this delusion in the majority; it still persists in some classes of the ignorant. *The persistence of a false idea even in the face of proof of its falsity does not stamp it as abnormal, and a false idea, as such, is no evidence of an insane state of mind.*

An insane delusion is one that can be shown to have a

pathologic origin; or which is manifested in accordance with the known laws that control insane symptoms.

An important characteristic of the insane delusion is immediate relation to the Ego, the person.

An insane delusion is not necessarily an impossible idea, nor an unusual idea; the ostensible insane character of it may arise simply from its effect on the conduct, or its relation to the previous education of the individual entertaining it.

To make these points clear illustrations are necessary. A person believes, for example, that the sun stood still for Joshua. This is a matter of belief based upon education and religious faith, and has no personal concrete meaning. The insane individual asserts that like Joshua's sun in Ajalon the sun was arrested in its course for him and cites subjective proofs that convince himself but no one else. In the first instance whether the person entertains a delusion or not, is a question of faith; in the second case, the individual is certainly deluded in the eyes of all; his personal experience is immediately regarded as abnormal because the experience and reasoning of all are in contradiction with his assertion. He has transformed his belief in a miracle into concrete subjective experience—given it a personal application. The pathology of such a case lies in the loss of relation between the real and the abstract. The delusion is based on the normal belief in the possibility of repetition of a miracle, and the subjective abnormal conditions which allow imagination to take control of consciousness to the exclusion of the immediate evidence of the senses derived from the objective world. The belief of a single individual of having experienced an arrest of movement of the heavenly bodies must rest upon subjective experience, not upon objective reality,

and therefore must be due to abnormal conditions in the individual and necessarily have a direct relation to the Ego.

All educated persons know that the earth turns on its axis, without, however, having any proof of the fact; astronomers proved this fact by a process of reasoning, but physical demonstration of it was not made until the fifth decade of the nineteenth century. The dictum of the learned was finally accepted by those educated by them, and at the present time mankind accepts through belief a physical fact, which not one in ten thousand could demonstrate to the satisfaction of one educated to believe the contrary. There is no better proof than this that it is not the nature of an idea that is abnormal, but the manner of its origin.

Copernicus was considered demented by Bacon because the Copernican theory seemed extraordinary to that reputed man of science; thus, what is or seems extraordinary is not a sign of insanity. However, ideas that are absurd or impossible may have at once the color of abnormality, as when one tells us he has built a ladder to the moon. Persons that actually entertain such absurd delusions never feel any need to prove their assertions; a fact which serves to distinguish such insane delusions from similar fantastic or impossible ideas assumed to simulate insanity. The logic of the sane mind is uncontrollable by the will; a sane mind may assume to be possessed by a delusion, but the logic of a rational thought can always be detected in a close analysis of the relation of the assumed delusion to the process of thought as revealed in action and description.

To show that a delusion need not be unusual or impossible, analyze the common delusion of alcoholic insanity in the husband—he believes his wife unfaithful; unfaithfulness is not impossible or extraordinary. In such a case it is unim-

portant whether the wife is false or not; the important point is to ascertain how the husband came to develop the idea; in other words to ascertain the subjective manner of its origin.

Insane delusions may be divided into classes in accordance with certain characteristics they present.

Expansive delusions are those characterized by increase in the valuation of self, and this is the basis of so-called grand delusions, or delusions of grandeur (megalomania).

Grand delusions may be primary or secondary and concern any of the relations or powers of the individual. The patient may believe himself an extraordinary personage—a king, an emperor, a god; he may fancy himself the possessor of millions of money, of horses; he may be convinced that he is an example of physical perfection and beauty, or possessed of unexampled intellectual power and genius, or a religious savior of the world. The sexual mental element is often implicated: men have unheard of sexual power; women have borne five hundred children or have had a miraculous conception and borne a god. The majority of grand delusions are striking on account of their absurdity.

Depressive delusions are such as have an accompaniment of melancholy, or sadness, and they have also very often as a basis under-estimation of self, or conviction of unworthiness or powerlessness. Thus there arise delusions of sin, of neglect of duty, of being the cause of all the misfortunes of the world, of all disease, etc. Such depressive ideas may take on an inverse character of grandeur (micromania).

Depressive delusions are very frequently logically accompanied by ideas of punishment, and the patients come often

to believe that they are the object of pursuit by officers or of vengeance of higher powers.

Depressive delusions are said to be *hypochondriacal* when their content is a false idea of the body itself,—of being diseased beyond remedy, of being a source of contagion, etc.

Delusions of persecution form a very important category of insane delusions. A person so afflicted believes himself to be the object of persecution in some form. The melancholy patient, if entertaining a delusion of persecution, acknowledges that he deserves his suffering, for he has done something to cause it; the melancholic ideas of persecution grow out of the ideas of sin, etc., and have no other meaning than the emotional state from which they spring.

Primary delusions of persecution have special significance owing to their profound influence in distorting the personality. They owe their origin to an abnormal intensification of the sense of the importance of the Ego as related to others and the world, in a person having logical powers of thought and acuteness of observation. *Primary delusions of grandeur* also rest upon intensification of the sense of the importance of the Ego, but for this to result in grand delusions there must be defect in the logical powers of thought and defect of observation. *Primary delusions of grandeur* indicate an intellect originally of a low order; *primary delusions of persecution* indicate a higher order of intellect.

The development of primary delusions of persecution may be traced as follows: increase of self-consciousness leading to pre-occupation with the Ego, with consequent overestimation of the value and importance of self (the individual feels "big" and gradually assumes an air of superiority to others); this mental attitude finds no acknowledgment in

others, but rather meets with obstacles in ridicule or efforts to repress or overcome it. These obstacles become a source of reflection to the patient; and convinced of his own value and superiority he can only conclude that the refusal of others to accept his own estimate of himself is a kind of persecution. The idea of persecution once awakened, the persecution becomes, by a process of reasoning, a proof of the justice of heightened self-estimation, and is explained as the result of envy and jealousy on the part of others, who thus indirectly acknowledge the individual's superiority. Thus a suspicious, expectant state of mind has arisen, and the patient gradually comes to see and expect a hostile attitude in everything; so that his personal relations to the world become distorted.

If hallucinations be added, as they usually are, they serve to render the persecution precise, and the delusion of persecution is fully developed and becomes a controlling idea around which all other ideas are logically grouped—*a system of delusions* is developed. The original self-overestimation may ultimately lead to *systematized delusions of grandeur* through those of persecution; this change from primary delusions of persecution to ideas of grandeur, is called the *transformation*, and indicates a decided change of relations of ideas and feelings. In the first period the sense of persecution outweighs the feeling of self-aggrandizement and controls thought and action; in the second period the original feeling of self-importance, now fully developed, takes control, and the delusions of persecution become inferior to the delusions of grandeur. It is an indication of lowering of mental power; for the patient becomes entirely controlled by subjective feelings and ideas and pays no heed to the logic of external events.

This description serves to explain the fact that primary delusions of grandeur are an indication of feeble mental powers, due to pre-occupation with internal feelings and ideas, made possible by the lack of power to appreciate the logic of the external world.

Delusions of jealousy form an important variety of delusions implicating the personality in its sense of self-esteem.

A noteworthy variety of persecutory insanity is that of *quarrelsome persons* who are constantly at legal war with their neighbors and friends and finally with the law itself, as a form of persecution (*querulous insanity*).

But not all querulous persons are insane, though predisposed to become so; just as all over-conceited persons are not insane, though possible candidates for the insanity of persecution or grandeur.

The content or nature of the ideas that make a delusion are as varied as individuals and circumstances of life and education.

Primary delusions are such as form the starting point of the insane state.

Secondary delusions are those that arise from some previous mental anomaly: preceding delusions; emotional states (depression, exaltation); hallucinations.

Many delusions may be combined in a great variety of forms. When several come to be associated in a logical system of relation, they are said to be *systematized,* and then the system of delusions acts as a whole to control the mind of the patient.

Delusions may be fixed or changeable; they may be constant or interrupted.

The theory of "Monomania" was the result of the as-

sumption that certain persons were insane (deluded) on one subject and sane on all others. Practically, however, it is found that there is no such thing as a single fixed insane delusion in an insane person; careful examination always reveals others, or other mental anomalies; the presumed monomania only designates a *predominating* false idea.

A fundamental characteristic of the insane delusion is that it cannot be corrected or overcome by any proof of its falsity; but in this it does not differ from certain sane delusions. However, the causes of this impossibility of correction of sane and insane delusions are quite different. The insane delusion cannot be corrected because it has its origin in subjective ideas and associations of ideas that depend upon abnormal conditions of the brain. The sane delusion cannot be immediately corrected because it is an opinion or belief not susceptible of immediate material refutation; itself the product of experience and teaching, it may require comparatively long experience and teaching to eradicate it.

The relations of insane delusions to the feelings and other elementary psychic anomalies will find ample subsequent illustration; and their effect on conduct will also be made clear in the discussion of the various types of insanity.

The possibility of concealment of delusions is an important fact that will receive due consideration in the following lessons.

LESSON VII.

Anomalies of the Feelings.

The feelings may be divided into those of organic or bodily nature and those of a moral kind.

The bodily feelings are hunger, thirst, sexual feeling, and the feeling of fatigue and its opposite; fatigue leads to the feeling or desire for sleep.

These organic feelings may be disturbed in three ways:—increased, decreased, perverted. These disorders often form a part of insanity, though they may be independent of the general mental state and afford physical rather than mental indications.

Examples of increase are afforded by the inordinate appetite of idiots and imbeciles and in certain forms of insanity like paretic dementia and certain stages of mania.

Increase of thirst for a physical reason occurs in certain forms of diabetes; for a mental reason it is observed in cases of dipsomania, in which the thirst is for alcoholic drinks.

Increase of sexual feeling or desire is often a symptom of certain mental diseases characterized by general nervous excitation—mania, paretic dementia,—and it leads to sexual excesses in coitus or masturbation.

Similarly, in some conditions (maniacal), there is an

increase in the general feeling of bodily well-being and strength that is the opposite of fatigue.

Decrease or absence of desire for food presents itself in all degrees of anorexia in certain forms of insanity, up to absolute refusal of food. Lack of thirst is exemplified in hydrophobia and in the intervals of dipsomania and in melancholia.

Diminution of sexual desire occurs in depression of all the mental functions, and especially in certain organic mental diseases—paretic dementia, chronic alcoholic insanity.

Fatigue is a normal result of continued muscular activity, but it may be abnormal in the sense that it may appear after slight exertion. Its failure to occur, as already noted, is observed in states of mental excitement; its abnormal increase is characteristic of states of mental depression.

Perversion of the organic appetites is very common, especially of those for food and for sexual gratification. Perversion is understood to mean desire for that naturally undesirable, or aversion to that naturally desirable.

Appetite for chalk, earth, and other similar substances, is well known. Certain insane patients delight in drinking urine or eating excrement; anthropophagy is rarer, and usually an element in sexual perversion.

Sexual perversion is very important as a mental anomaly, because it always raises the question of insanity, and is a frequent symptom of insanity. It presents itself in various forms, either alone as a striking symptom or as one of several symptoms indicating an insane condition.

Contrary sexual feeling is a desire for sexual commerce with the same sex.

Sadism is sexual gratification in the infliction of pain.

Masochism is sexual pleasure in the experience of pain or injury,—physical or imaginary.

Erotic fetichism is sexual satisfaction in relation to some object more or less remotely connected with sexuality, which renders normal sexual relations unnecessary, repugnant, or impossible.

Necrophilia is a desire for sexual congress with the dead: a form of ideal Sadism or an independent phenomenon.

Exhibitionism is sexual gratification in exposure of the genitals, either as an object in itself, or as a means of obtaining ultimate sexual satisfaction in another form.

Sexual abuse of children is another form of sexual perversion.

Incest, either hetrosexual or homosexual, is a form of psycho-sexual perversion.

All these perversions are more or less closely allied to insanity in its various forms.

Finally *masturbation* may be regarded as a sexual perversion; for it often renders natural desire impossible, and becomes the starting point of other forms of sexual perversion.

Normally we experience a feeling of well-being, of health; in the beginning of disease we have a feeling of malaise, of sickness. Such feelings are the result of many factors. In insanity this general feeling may present various disturbances. There may be a feeling of well-being when the patient is very far advanced in disease; or the feeling of sickness may be experienced and fully appreciated.

The moral feelings present likewise abnormal increase, decrease, or perversion.

There is no fixed standard of moral sensibility, and we can regard extremes only as abnormal; but without other symptoms of insanity, even extreme expressions of moral sensibility do not suffice to establish the existence of insanity.

In insane conditions we meet increase of religious feeling, unreasonable piety; extreme altruism, unreasoned charity; excessive moral sensitiveness to evil in all its forms which makes it impossible to reason with it. Such states of moral feeling, when exaggerated, though possibly without insanity, are exemplified in the founding of hospitals and cemeteries for cats and dogs and canaries; in the *anti*-movements of idealistic reformers in the effort to ameliorate the condition of beasts of burden. Such efforts are based upon hypersensitiveness of a certain kind and rarely directed rationally to discover and remedy causes. It is also remarkable that persons who wage campaigns for beasts are very insensible to the sufferings of humanity. The use of chloroform in confinement was long tabooed because woman was destined to bring forth in pain. Anti-alcoholic enthusiasm finds extreme manners of expression that have no relation to reason.

Decrease or want of moral feeling (moral indifference) is a very common symptom of insanity. It is characteristic of paretic dementia, alcoholic insanity, epilepsy, and hysteria.

A special form of this defect is called "Moral Insanity." Moral imbecility is a better term for the condition; for so-called moral insanity is not an acquired but a congenital condition. Moral anomalies are frequent symptoms of insanity, but moral insanity is a term applied to cases in which there was never any moral development, but in which sharpness of intellect was not wanting. There are children that

never experience filial feeling, and who yet go through life without other remark than that they are devoid of natural feeling; so there are individuals in whom the common feelings of pity, compassion, tenderness, and a sense of right and wrong, are never developed; in whom all actions are based upon the experience of egotistic utility. Such individuals are moral imbeciles, and in certain cases the defect is so marked that the individual is constantly in conflict with society and regarded as insane or a criminal. Moral imbeciles may become criminal, but not all criminals are moral imbeciles.

Change of moral feeling as expressed in the attitude toward the family, the influence of moral ideas in general, with reference to good and evil, to self-respect, honor and duty, is one of the earliest and most delicate tests of the development of an abnormal mental condition. *Gross and open infraction of moral law in one formerly solicitous to fulfill moral obligations, is practically a sure indication of mental disease.*

Perversion of moral feeling is exemplified in natural or acquired perversity which finds pleasure in the suffering of others, is devoid of a sense of shame, and takes delight in lying. There are pathologic liars of various degrees; cruel, shameless liars are usually so from original defect or imperfect development.

THE STATE OF FEELING, OR THE EMOTIONAL MENTAL CONDITION, is made up of all the feelings or emotions present in consciousness at a given moment. This general emotional state is the result of very complex interrelation of elementary feelings, and is of great importance, when disturbed, as an aspect of insanity.

From the standpoint of psychopathology the most im-

portant emotional states are *depression* (melancholy), *elation* (mania), *fear* (phobias), and *anger* (furious mania).

Absence of any definite emotional coloring occurs, and if persistent leads to a state of dullness of feeling,—emotional indifference.

Normally the play of the emotions presents infinite variations in obedience to internal and external causes. In certain forms of insanity often there is a marked increase in the emotional activity; in others there is persistent monotony of the emotional state.

When the emotions take control and become the cause of wild acts, we speak of the condition as an *affect*. Acts of blind anger, of fury, of despair, are outward indications of affects resulting from painful emotional states; wild expressions of joy spring from pleasant emotional states. In general an affect causes clouding of consciousness, so that its subsidence leaves but an imperfect memory of the period of its existence. On the other hand, the affect of fear may lead to absolute motor inhibition, so that the individual is paralyzed.

Emotional depression (melancholia, sadness) is a symptom of many forms of insanity; when primary it gives its name to a certain form of disease—melancholia. It may develop the *affect* of despair (raptus melancholicus), or paralyze all activity and induce mental torpor (stupor).

Emotional elation (joy) is likewise a symptom of various forms of insanity, but in its primary uncomplicated form is called mania. The affects that develop on this basis are those of wild joy and those of furious anger and blind psychomotor activity. The melancholic state is monotonous and not prone to find expression in disordered activity; the joyful maniacal state, on the contrary, is characterized by

variability of ideational accompaniment, and very apt to increase to the affects of anger and fury. Tears and momentary sadness are also seen in the picture of mania.

PHOBIAS are fears which have a pathologic foundation, and they may be precursors or accompaniments of insanity. A phobia is not necessarily a proof of insanity. Normal persons have certain fears for various reasons, and phobias likewise arise from various sources. One person has been in a runaway, and thereafter is afraid and refuses to trust himself in a vehicle drawn by a horse; another has been in a railway accident and fears to travel on a railway; another has read of microbes, and develops a fear of everything dirty; another has a fear of dizzy heights from experience. It is not always possible to discover the origin of a persistent morbid fear, for often it has its beginning in internal conditions that escape examination. Undoubtedly many cases of phobia have their origin in vertigo, normal or abnormal. The sense of equilibrium is a matter of education; it is not natural to have a perfect sense of equilibrium on heights with absence of surrounding near objects, but it can be so cultivated that there is no fear on high places. Doubtless aural vertigo is capable of causing fear of open spaces (*agoraphobia*). *Claustrophobia* (fear of closed rooms) may arise from cardiac or respiratory disorders, which initiate a sense of oppression or of inability to breathe freely. *Mysophobia* (fear of dust or dirt) is generally of purely intellectual origin.

The importance of phobias will be understood in the later consideration of them in their relation to insanity.

THE EMOTION OF FEAR has a marked effect on the circulation and respiration; on the other hand disturbances of the circulation and respiration have power to excite a state of

fear which to the individual seems primary and without cause: he is in a state of painful anxiety and apprehension which dominates consciousness and holds him spellbound. Precordial anxiety is a variety of fear often met in certain forms of insanity; probably it is due to or has its origin in sensations reaching consciousness through the vagus. The affect of fear, of course, may have various bodily or mental causes (hallucination). Its immediate effect is to paralyze psychomotor activity (rigidity with tremor); but not infrequently this is followed by wild violence of activity; as if the motor centers, held too long in check, had accumulated force sufficient to break the bond of restraint imposed by fear.

General disturbances of consciousness. Lucidity is a term used to designate a state of clearness of ideas, feelings, etc., with orientation in time and space. Insanity often presents departures from this lucid or clear state of consciousness. Often a patient appears lucid when his lucidity is only partial or assumed. From this it follows that *apparent* lucidity does not exclude insanity.

In contrast with lucidity are *confusion* and *incoherence*. They are revealed by incoherent speech and action which indicate the lack of order in the association of ideas. Incoherence may be due to temporary disturbance of association of ideas (hallucination, emotions), or to organic cerebral defect (paretic dementia).

Cloudy states of consciousness may be compared to what we experience between sleeping and waking, when for a few moments are mingled dream-pictures and actual sense-impressions, one or the other of which may take control and lead to acts more or less unconscious. They form

important symptoms of insanity, in which they may be of indefinite duration.

Stupor indicates a more profound disturbance of consciousness, and it presents itself in various degrees and qualities. We speak of melancholic and maniacal stupor, of catatonic and hypnotic stupor, when it is a symptom in the course of such primary forms of mental disturbance.

LESSON VIII.

Disordered Acts.—The Will.

Owing to the disturbance of consciousness in insanity there is increased possibility of reflex or subconscious acts; of acts which are not the result of mental reflection but of direct transformation of sense-impressions or ideas into movement. Such psychic reflex acts may be called instinctive if they have their origin in some sensual inclination (sexuality, hunger); or emotional when they have as a cause some powerful affect.

When the element of mental reflection is interposed between a stimulus and an act, the latter is called volitional,—the "will" has been interposed. So-called voluntary acts (the outward expression of the will) present two kinds of disorder,—increase and decrease.

Increase of activity is observed in mania and allied states of excitement; *decrease*, in states of stupor and mental inhibition from melancholia and hallucinations, and in dementia from organic cerebral causes.

The moral aspect of voluntary acts in insanity forms a most important element of the disease. *Conduct* may in many cases be of the greatest value for answering the question of the existence of mental alienation.

The presence of one or more of the elementary disorders of the mind may suspend at any moment what we regard as

the "will," and the individual then acts in harmony with consciousness, not in harmony with what his education would seem to dictate. Our moral ideas are the result of teaching; our moral actions (morality) are the result of the predominance of these ideas over those of a lower order. Infractions of the laws of morality to be symptoms of disease must be shown to be due to lack of development of moral ideas, or to loss, suspension, or misinterpretation of them, as a result of disease.

Thus it is clear that the fundamental elements of insanity are disorders of the emotions and the intellect, and that so-called disorders of the "will" are merely expressions of one or both of the former.

ATTITUDE, FACIAL EXPRESSION, HAND-WRITING, and SPEECH are avenues through which morbid mental conditions are habitually displayed, and their peculiarities deserve special mention.

The attitude and facial expression of melancholia are striking, with the body bent forward, head hanging, limbs partially flexed (if standing),—all of which accords with the facial expression of sadness and despair—brow contracted, corners of mouth depressed, muscles of face relaxed, eyes partially closed and dull. In maniacal conditions the attitudes assumed are energetic and the play of the features is very lively, while the eyes are bright and all the face indicates the quick play of feeling (pleasant or angry).

In some cases of hallucination, are observed the attitude and facial expression of fear and expectation; in others, those of fixed attention; in others, there is the fixed attention and expression of beatitude or of worship (ecstacy).

In contrast with the foregoing, is the facial expression of dementia,—absence of feeling; mouth open, with an at-

titude of relaxation which may be much like that of melancholia.

THE DISORDERS OF SPEECH observed in insanity are numerous. Many insane persons do not speak at all, and it may be difficult to determine the cause of this. Aside from that of idiocy, it is found that insane mutism is the result of hallucinations or delusions. Hysteric mutism is a special form of this disorder.

Insane patients that speak may present disorders of speech due to the fundamental mental disturbance (coprolalia). Mental confusion or incoherence expresses itself in an incoherence of language, a mixing of words without order or meaning; or language may become simply a series of words, one suggesting another by assonance,—a lesser degree of which is rhyming.

The formation of new or senseless words to indicate delusional ideas is very common in some forms of mental disease.

VERBIGERATION is a term applied to the constant repetition of the same word or phrase.

ECHO-SPEECH is the repetition of what is heard, as if it took place reflexly.

Certain patients speak with great rapidity—a true logorrhoea. In contrast, is great slowness of speech, words being separated by long intervals.

STUTTERING AND STAMMERING can only have significance if they begin during the psychosis.

THE TONE of the voice also presents anomalies. It may be low, whispering, tremulous, loud or harsh; in organic psychoses the voice may be nasal, or present other peculiarities due to paralysis of the organs of articulation.

By far the most important disturbance of speech in in-

sanity is the defect of articulation observed in paretic dementia. It is characterized by a *stumbling on syllables* and an impossibility of pronouncing certain syllables, which in its highest degree renders certain words unintelligible. The speech of paretic dementia is fully considered in the description of that disease.

THE HAND-WRITING of the insane, in form and content, presents anomalies allied to those of speech. With perfection of form, written language betrays the peculiarities of ideas or feelings revealed by speech; but at times the insane may be silent or reserved in speech and very communicative in writing. Certain patients are given to underlining some words or certain phrases, or to making new words. Coprolalia has also its equivalent in writing, in the sense that the patient cannot put pen to paper without writing something disgusting or obscene, usually a phrase repeated until the paper is full and crisscrossed. Extremely fine (small) writing may be a peculiarity.

The handwriting of the maniacal is careless and imperfect in form, and shows the superficial character of the association of ideas.

In paretic dementia the writing is tremulous, and shows absence of letters or syllables comparable to the defects of speech observed in that disease.

MIRROR WRITING is a rare phenomenon. The writing is from right to left and requires its reflection in a mirror to make it legible; for it is exactly the opposite in movement and form of normal writing.

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THE PHYSICAL ACCOMPANIMENTS OF INSANITY. In the vast majority of cases, insanity is a sign of imperfect constitution or development; and logically we might ex-

pect to find associated with it physical imperfections. Observation shows that certain physical defects are more common in the insane than in the sane. Such defects of physical development, marked deviations from the average of form and constitution of parts or of the organism as a whole, are called *physical signs of degeneracy*. However, it must be emphasized at once that there is no absolutely necessary connection between physical signs of degeneracy and insanity. A sound mind may exist in a very "degenerate" body, and a "degenerate" mind may control a very perfect body. The relation of physical and mental degeneracy is one of averages. Physical degeneracy is more common in the insane than in the sane; and there it is more marked in association with certain forms of mental disease that are called degenerate. The combination of the two is called *psycho-physical degeneracy*.

The so-called physical signs of degeneracy consist of physical defects which place the individual below the ideal average of physical development.

The cranium in size and form is first to consider from a clinical standpoint. (Degenerate morphology of the brain can only be determined *post-mortem*.) A head too large or too small can be readily recognized, but it is better to be precise. Observation has determined averages of size which are normal. Certain measurements are used to determine the size and form of the head of the living. The following are averages for the living adult:

Circumference—average—male, 541 millimeters; female, 523 millimeters.

A circumference of 550 mm. or more is called megalocephaly; one of 461 mm. or less is called microcephaly.

Length—average—male, 183 mm.; female, 178 mm.

Breadth—average—male, 150 mm.; female, 140 mm.

The *breadth index* is obtained by dividing the breadth, multiplied by 100, by the length. $(\frac{B \times 100}{L})$

75 or less is called dolichocephaly.

75-80 is called mesocephaly.

80-85 is called brachycephaly.

The *facial angle* is determined by the angle formed by the profile line and the horizontal plane of the skull (auriculo-nasal line). When this angle is 82 degrees or less, the skull is prognathous; mesognathous when it is from 83 to 90 degrees; hyperorthognathous when it is 90 degrees or more.

The hydrocephalic head is characterized by over-development of the skull with arrest of development of the face.

Cretinism presents certain cranial forms more or less characteristic.

Inequalities and asymmetries of the skull are important only when very marked; for defect at one point or on one side is usually compensated by over-development elsewhere.

The numerous classes of skulls distinguished in craniology have but a subordinate practical interest for the alienist.

The malformations of the *hard palate* and the *dental arches* have been very elaborately studied. Want of union of the hard and soft palates, and the high and narrow palatal arch, are the most common. The dental arch may show unilateral or bilateral defect or distortion. Many of these defects are due to loss of teeth during the years of development; others are due to defects of development of the superior maxillary bones and the nares.

The *teeth* present anomalies in number, form, and size. The Hutchinsonian teeth (upper incisors,—hereditary syphilis) have the form of a "screw-driver."

Malformations of the *ears* are extremely common, and many have been described: unequal size or difference of form; unlike implantation; defect of parts like the lobule; attachment of the lobule to the skin of the face. The Dar-

winian ear is characterized by a prominent point on the outer and upper portion of the helix (Faune's ear). Morel's ear is one very large and flat (wing-like) in its upper half.

The *eyes* present many defects of position (Mongolian) and size, as well as various peculiarities in form and color.

In the limbs are observed *club-foot, club-hand, supernumerary digits* or *want of digits,* and also *union of adjacent fingers and toes.*

Certain defects in the growth of the *hair* are also to be mentioned: deficiency of growth or overgrowth; growth in unusual places, like the tuft of hair of mythologic satyrs over the lumbar portion of the vertebral column. This peculiar growth of hair is possibly less frequent now than formerly; or our habits and dress cause it to seem so. Sutton explains it as due to spina bifida; for defective closure of the vertebral canal is usually attended by growth of coarse hair on the skin that lies over the opening.

The various *genital defects* are also important: hypospadiasis, epispadiasis, cryptorchism, enormous clitoris, imperforate hymen or vagina, uterus-bicornus, etc.

These physical signs of degeneracy are very common in the sane. If many or several of them be present in one person we are perhaps justified in speaking of physical degeneracy; but one or a few such signs would not permit us to conclude that an individual is degenerate. As far as the mind is concerned they have no positive individual value except in cases of very gross imperfection of development of the body and the cranium. The only practical criterion of the conditon of the mind lies in the mental manifestations.

However, physical signs of degeneracy are more frequently observed in the mentally defective and the insane than in the population at large; and the physical signs of

degeneracy are very frequently associated with certain forms of mental anomalies which are called signs of psychic degeneracy. Thus there are certain cases of insanity or mental defect called instances of psycho-physical degeneracy. In other cases the same mental symptoms without physical signs of degeneration are spoken of as examples of psychic degeneracy; thus a class of *degenerate insanity* is established.

The physical and mental signs of degeneracy, as a rule, are indications of a bad heredity, which as an element in the causation of insanity takes the first rank.

The practical value and importance of physical and mental signs of degeneracy will be clear in the study of the etiology of insanity, and in the description of the various forms of mental disease and mental defect.

LESSON IX.

Anomalies of General Bodily Functions; Some Special Nervous Signs and Symptoms.

Insanity is essentially a symptomatic expression of disturbance of the cerebral cortex and the nervous system. The underlying cerebral and nervous disturbance may be organic or functional; that is, due to material alterations of nerve-tissue or to conditions that leave no material trace behind. In certain cases the mental symptoms can be interpreted as certainly the expression of organic disease; in others we can not postulate more than a derangement of activities of nerve-centers. For the most part insanity on an organic basis is incurable, while many cases of insanity of a functional kind may terminate in "recovery." Therein lies the importance of correct diagnosis with reference to the organic or functional nature of a given case. This is the first question to consider in the diagnosis of insanity, as in nervous diseases in general, and should be the starting point of the examination.

The immediate mental symptoms may enable us to determine the existence of an insane state, but they may offer only presumptive evidence of the organic or functional nature of the underlying cerebral condition. For this reason physical indications of organic disease of the brain or nervous system are of capital importance as an index of the prob-

able nature of accompanying mental derangement. However, it must be emphasized that there is no necessary connection or relation between signs of organic nervous disease and insanity. For example, an organic hemiplegic may be insane or not; there may be direct relation between the paralysis and insanity or not. A hemiplegic may have an attack of melancholia and recover like any other person. An aged person showing the natural mental signs of age—dulling of the mental faculties and living in *tempora acta*—may have and recover from an attack of functional insanity.

Physical symptoms that accompany insanity do not necessarily form a part of the insanity; for these symptoms are met every day in sane persons, and they are wanting in some cases of insanity at all times, in others, at certain periods of the disease. In general it may be said that all acute insanities present many symptoms of derangement of bodily functions; that chronic insanities may or may not, according to their nature, present such symptoms.

Sleep as a general vital phenomenon presents many anomalies in insanity, especially in acute cases; but it may be perfectly normal in insanity. Absolute absence of sleep (agrypnia) is observed; insomnia, or only fitful and temporary sleep, is a symptom seen in certain cases. Agrypnia and somnolence may be of indefinite duration. The natural time for sleep may be altered: wakefulness at night, somnolence during the day. *Narcolepsy* is a peculiar phenomenon in which sleep overcomes the patient suddenly and without warning—like an epileptic attack—and which ends spontaneously with no necessary relation to efforts made to arouse the patient.

The temperature is for the most part normal in insanity. Any marked rise or fall calls for a search for its

physical cause as in any other case of disease. There are important exceptions to this statement; namely, in acute delirious mania (probably an infection), and in the cerebral attacks that occur in the course of paretic dementia. Subnormal temperatures and rapid or daily variations of temperature are observed in chronic insanities, but in such cases they probably depend on infections (tuberculosis).

THE PULSE is very frequently normal, but it may present many abnormalities. As a rule, in states of excitement it is rapid and full; in depression, slow and hard; in organic cerebral disease it follows the usual law,—slow in apoplexy and in cases of cerebral tumor. The blood pressure corresponds with these conditions,—lowered in maniacal, increased in melancholic conditions.

RESPIRATION is altered, especially in melancholia and marked dementia,—it becomes slow and superficial. It may be rapid in mania, and also in certain states of mental apprehension. Aside from these peculiarities its alterations depend upon physical complications (infections, gross cerebral and bulbar lesions).

THE FUNCTIONS OF THE ALIMENTARY TRACT are frequently deranged in the initial and acute stages of insanity—loss of appetite, constipation, foul tongue, etc. Food may be absolutely refused because of such conditions; but very frequently refusal of food has a delusional cause, aside from any existing derangement of the digestive organs. The odor of the breath of a patient that does not take food soon becomes peculiar,—it is somewhat like that of ether; this is said to be due to the presence of acetone. Increase of appetite with loss of the sense of satiety is characteristic of dementia.

GENERAL NUTRITION (weight) shows very important

variations that are connected directly with the mental state. Independently of the appetite and the amount of food taken, in the acute insanities there is loss of weight; the depressed and the excited alike grow thin. Increase of weight after loss, if it correspond with abatement of mental symptoms, is of favorable omen; but it marks the beginning of chronic mental weakness if it occur without signs of mental improvement.

Special trophic anomalies are often observed in organic insanity—paretic dementia, chronic dementia. The *insane ear* (othematoma) is especially remarkable. It results from hemorrhage between the cartilage and the epichondrium, usually caused by a blow or other mechanical injury to the ear. The insignificance of the injury seems to prove that the resulting hemorrhage is favored by trophic changes in the vessels of the epichondrium. The swelling usually occupies a position on the internal surface of the concha or helix; it may be very small at first and gradually increase till the ear is filled by a fluctuating swelling more or less bluish in color. Finally the effusion is absorbed with consequent cicatricial distortion of the ear. Similar swellings occur elsewhere (cartilage of nose, ribs, etc.). Othematoma occurs in sane persons (pugilists).

Abnormal fragility of bones is seen in paretic dementia.

Decubitus (bed sores) and mal perforans, due to trophic changes in the subcutaneous tissues, are frequent in bedridden patients. Uncleanliness often acts as an exciting cause; but there are very acute cases which must depend on trophic changes alone.

Trophic changes of the hair, nails, and teeth are not infrequent in organic insanity.

DISTURBANCE OF THE VASOMOTOR FUNCTIONS is very common—vascular spasm or paralysis.

THE SECRETIONS are frequently disordered. The secretion of saliva is increased in certain cases (maniacal), diminished in others (depression). The lacrymal secretion is frequently deficient or wanting in melancholia. Perspiration may be excessive or entirely wanting; or these anomalies may be partial or localized.

THE URINE presents many anomalies: diminution of phosphoric acid; albumen; sugar, etc. The practical importance of these is the same as in cases of physical disease.

THE DISORDERS OF THE FUNCTIONS OF THE BLADDER AND RECTUM deserve careful consderation, for they are extremely frequent in insanity. Incontinence of urine may be due to lack of attention (pre-occupation), and the urine is passed reflexly; or to absence of the normal feeling of distention of the bladder. It occurs reflexly in states of unconsciousness; it may be due to paralysis of the sphincter. Some patients pass urine purposely with a view to give the impression of enuresis. *Retention* of urine may arise from inattention with simultaneous spasm of the sphincter, or from anesthesia of the bladder. It may be due to paralysis of the detrusor or loss of the reflex, as observed in organic disease of the brain and spinal cord. Some patients purposely retain the urine to induce genital manipulation (females). *Dribbling* of urine may be an indication of incontinence or of retention, and always requires careful examination of the bladder. In general, depressed, stuporous, and unconscious patients should be examined with special care for anomalies of the functions of the bladder.

INCONTINENCE OF FECES may have causes like those of enuresis. The retention of feces, aside from spontaneous

constipation, may be intentional and due to delusions. Over distention of the rectum occurs and may require mechanical interference. Some patients intentionally soil themselves, their beds, and their surroundings with feces and urine in obedience to delusions.

MENSTRUATION presents many variations. It may be undisturbed, irregular, or entirely absent. Its return during the course of an acute functional psychosis has the same significance as gain in weight; if it occur simultaneously with mental improvement it is a favorable sign.

PHYSICAL DISEASES are very frequently associated with insanity. Their relation to mental diseases may be intimate or remote; they may be direct or indirect etiologic factors. They are not symptomatic of insanity, but they may exercise a profound influence on the insane symptoms. The discussion of these relations will be best understood in connection with the etiology of insanity.

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SPECIAL NERVOUS SIGNS AND SYMPTOMS associated with insanity are of the first importance as making possible the fundamental distinction of organic disease of the nervous system from functional neuro-psychic disturbances.

The association of organic disease of the nervous system and insanity is in the great majority of such cases that of organic relation; the possible exceptions are rare. For this reason the neurologic examination of an insane patient is as necessary as the psychologic.

The diagnostician of nervous disease is logically forced to say in the absence of signs of organic disease that the case is presumably functional; for if organic, it cannot positively be declared organic; nor can it positively be declared to be functional.

The reflexes of the nervous system allow a very complete examination of its organic condition, and enable us to speak with comparative certainty of the nature of symptoms presented. Objective signs of disease form the soundest basis for correct diagnosis and the state of the reflexes affords us this objective evidence.

FUNCTIONAL NERVOUS AND MENTAL CONDITIONS DO NOT DISTURB OR ALTER THE REFLEXES. This statement is not in accord with that of the majority of authors. But it is practically nearer the truth than any statement to the contrary; for exceptions to it are extremely rare, if they exist, and should be neglected for practical purposes. On the other hand *normal reflexes do not exclude organic nervous and mental disease.*

Examination of the fundus of the eye gives us some data. Optic nerve atrophy is frequently but a local manifestation of more general organic disease of the nervous system; choked disk is a frequent accompaniment of intracranial growths.

The latest, and a very valuable, addition to our means of nervous diagnosis is *examination of the cerebro-spinal fluid,* obtained readily and without special danger by lumbar puncture. It is precisely in certain doubtful cases of insanity that it gives the greatest aid.

There are certain forms of anesthesia (hypesthesia) which are positively indicative of organic nervous disease; but anesthesia is a subjective symptom, the nature and limits of which are often difficult to establish, especially in connection with insanity.

Paralyses, muscular atrophies, and certain other functional losses, may indicate organic nervous disease; but they require control, for they are not unequivocal. Thus paraly-

sis may be indicative of functional or organic disease, and it requires the aid of other signs to determine its true significance. The same may be said of muscular atrophy.

Profound trophic disturbances that lead to destructive changes of tissue are, as a rule, signs of organic nervous disease. The slight and transitory vasomotor anomalies of insanity have not this significance.

Though, as a rule, organic diseases of the nervous system are incurable, this is not a law; there are notable exceptions, in the sense that complete restoration of functions occurs with disappearance of all positive signs of organic disease. In such cases we may assume clinically that nerve-tissue escaped complete destruction; or that the function of an injured or destroyed portion of the nervous system has been assumed by another portion. Restoration of function by this means is the only logical explanation of certain pathologic findings.

LESSON X.

Some Signs and Symptoms of Organic Nervous Disease.—(*Continued.*)

The state of the reflexes affords the best evidence of the condition of the nervous system and they deserve to be considered first.

The reflexes are not disturbed in insanity; for insanity is purely an anomaly of mentality, and the reflexes are organic functions fundamentally independent of the mind, though still subordinate to it within certain limits. The reflex mechanism that controls the bladder is to a certain degree subordinate to the will: we can restrain the organic reflex impulse to empty the bladder; but in states of unconsciousness the reflex mechanism acts independently. Voluntary restraint does not annihilate the reflex, which is constantly seeking to bring about a certain act; it opposes a voluntary contraction of the sphincter of the bladder more powerful than the reflex impulse to relax it.

Similarly the mental state may inhibit or increase the knee-jerk; but its apparent loss or increase from such a cause is attended by other signs which explain the seeming anomaly; on the contrary, organic loss of the knee-jerk cannot be overcome voluntarily, nor can the revelation of organic exaggeration of it be prevented mentally. The voluntary movement made to imitate the knee-jerk (observed

rarely in tabetics anxious to deceive themselves) is easily recognized as such by the long interval between the blow and the jerk; the voluntary effort to control an exaggerated knee-jerk may limit the movement, but causes an exaggerated subsequent recoil.

The same is true of the skin or superficial reflexes. In hysteria there is often absence of sensibility of the conjunctiva and cornea, and the eyelids do not move when the conjunctiva is touched. In such cases the insensibility is mental (virtual), with a possible element of restraint of winking (as in the example of the bladder). The justice of this assumption is proved by the fact that in such a case the conjunctiva is constantly cleaned and protected by the automatic movements of the eyelids; the reflex exists but is restrained for certain stimuli. Moreover, organic insensibility of the conjunctiva leads very soon to serious trouble in the conjunctiva and cornea, because the organic reflex is really lost, not restrained. The occasional loss of other superficial reflexes in hysteria may be explained in the same way.

Pathologic alterations of the deep or tendon-reflexes indicate organic disease of the nervous system. The tendon-jerks are always present in health; the instances found in literature of absence of certain tendon-reflexes in normal persons are so rare and so open to doubt about the cause of absence, that they should be ignored. The tendon-jerks are practically never alike in force and extent of movement in any two persons, and they vary normally within wide limits at various times in the same person. This normal variation causes much confusion in estimating them, and thus in the text-books lively reflexes are called *plus* and moderate reflexes *minus,* with the implication that these qualities are pathologic. *The fact is that in estimating the quality of the*

tendon-reflexes the greatest care is necessary. The reflex movement may be such that no conclusion can be drawn from it. A very lively or a slight reflex movement may be perfectly normal. Absence of deep reflexes is always a sign of disease. Lively reflexes to be signs of disease, must present certain qualities or certain accompaniments which make it clear that they are exaggerated as a result of disease.

The reflexes to be discussed here are those that should be examined as a matter of routine as having a possible bearing on the condition of the brain.

THE IRIS [1] moves, dilates or contracts the pupil, in obedience to the stimulus of light and in the act of accommodation; the first is a reflex to light; the second is an associated movement. The iris moves also in certain emotional mental states and in convergence. Fear is attended by dilatation of the pupils. Narrowing of the pupils is due to contraction of constricting, widening to contraction of the dilating muscles of the iris. Branches of the third nerve supply the constrictors; nerves from the medulla, reaching the iris through the sympathetic, supply the dilators. Besides these sources of direct innervation, doubtless the size of the pupil and the movements of the iris are influenced by the vascular condition of the iris, and possibly the latter is the connecting link between an emotion like fear and dilatation of the pupil; and the contraction or dilatation of the pupils in certain temporary states of loss of consciousness (syncopic, epileptic, apoplectic) possibly may be due to the same cause. Probably the size of the pupil depends, when innervation and all other conditions are normal, upon the vascular condition of the iris.

[1] The effect of poisons to alter the reflex movements of the iris is not discussed.

The pupil dilates when the skin of the neck is painfully irritated (pricked, pinched). This is said to be due to stimulation of the sympathetic; it may be due to a vascular influence, for pain in general, like fear, causes pupillary dilatation and at the same time constriction of the superficial and smaller bloodvessels (pallor). It may be noted in passing that morphine, which contracts the pupil, is a vasodilator; that belladonna, a mydriatic, is a vascular antagonist of morphine.

Normally, whatever be the size of the pupil resulting from its vascular condition, it may be modified by light and by the effort of accommodation.

When light is thrown on the retina the pupil becomes smaller, to return to its former size when the stimulus is removed: this is the reflex to light. The pupil also grows smaller when an effort is made to accommodate for a near object; this is an "associated movement" of the iris in relation with the movement of convergence and contraction of the ciliary body; and it may occur in the absence of convergence in the effort of accommodation. There is a psychic contraction of the pupil which is probably of the same nature as the movement in accommodation, and the result of attention and expectancy of need to accommodate.

The movements of the two pupils are co-ordinate, and yet independent. Normally they always move in the same sense together, and maintain the same size. When the stimulus (light) affects one retina more than the other, both pupils contract, but the contraction is most marked in the eye receiving the greater stimulus. When one eye is kept in darkness its pupil dilates widely; the exposed pupil also dilates, but less markedly. These correlated movements

of the pupils are called "consensual reaction." The variations of consensual reaction are important means of determining the seat of lesions affecting the optic nerve and the branches of the third nerve distributed to the iris. To give an example of its importance: if the left optic nerve be completely atrophied there is no centripetal conduction and a light thrown on the left pupil causes no change in the size of either pupil; on the contrary, if the right retina be stimulated the right pupil contracts and the left also, though less markedly, if the efferent path through the third nerve be intact; and the left pupil also acts in accommodation with its fellow. Again, if the efferent conduction in the left third nerve be suspended with an intact left optic nerve, stimulation of the left retina causes no contraction of the left pupil but causes contraction of the right pupil. Thus, loss of consensual reaction may be due to lesion of one optic nerve (loss in the sound eye), or to lesion of the third nerve (loss in the affected eye).

The Argyll-Robertson pupil is one that moves in accommodation but not reflexly to light—a pure loss of reflex movement of the iris; it may affect one or both eyes. Consensual reaction is not lost in the eye presenting the anomaly if it be due to optic nerve atrophy. The Argyll-Robertson pupil, when not dependent on lesion of the eye is caused by lesion in a special reflex arc which controls the reflex movement of the iris, probably of a distinct reflex center; for the movement of the iris in accommodation remains intact, proving that the efferent path (third nerve) is intact.

Internal ophthalmoplegia is paralysis of all movements of the iris and of the ciliary muscle—lack of accommo-

dation, of the movement of the iris to light and in the effort of accommodation; so that vision for near objects is defective. It is not uncommon to observe iridoplegia—paralysis of the iris for reflex and accommodative movement—with retention of the power of accommodation. Iridoplegia causes a fixed pupil. The lesion causing it must be of the center for the iris, which is independent of the center for movement of the ciliary body.

Simple atrophy of one optic nerve cannot cause an Argyll-Robertson pupil in the strict sense, for the pupil still reacts consensually to light through the opposite optic nerve. Double optic nerve atrophy causes fixed pupils, but they still react to painful stimuli (sympathetic-vascular), and possibly in convergence.

Slowness of reaction of the pupils to light is abnormal, and often the initial stage in the development of the Argyll-Robertson pupil.

Unequal pupils may exist with or without anomaly of reaction in the movement of the two pupils; usually some abnormality of movement will be discovered in one or the other iris; the loss of movement may affect the smaller or the larger pupil.

Both pupils may be permanently too large or too small, usually with an abnormality of movement of the irides. So-called pinhead pupils (spinal myosis) may occur in tabes, occasioned by lesion of the cord at the level of the first and second dorsal segments, whence passes by the communicating branch to the sympathetic the nervous influence derived probably from the medulla which actively dilates the pupil. Argyll-Robertson pupils may be extremely myotic; then the movement in accommodation is comparatively slight.

Anomalies of the pupil as they occur in the epileptic state of unconsciousness, in states of intoxication or temporary unconsciousness from any cause, are temporary and devoid of great significance for the differentiation of organic cerebral disease, unless taken in relation to other signs and symptoms of organic nervous disease.

Anomalies of the pupils of a permanent kind, existing independently of any disturbance of consciousness and of demonstrable ocular lesions, are almost a certain indication of organic disease of the nervous system. Associated with insanity they are likewise practically a certain sign that the insanity has an organic basis, even though there be no other sign of organic cerebral disease.

The true Argyll-Robertson pupil is almost as certainly a sign of previous syphilitic infection as a chancre is of local infection. It may indicate as well hereditary syphilis. It is observed very frequently with other pupillary anomalies due to syphilis, especially in paretic dementia.

A diagnosis of functional insanity should never be made in the presence of an anomaly of reaction of the pupils, unless the anomaly can be explained by local conditions in the eye demonstrably without relation to the abnormal mental condition.

Paradoxical reaction of the pupil—dilatation to the stimulus of light—is sometimes observed, a stage in the loss of reaction of the pupil to light.

With fixed pupils under ordinary conditions of observation, sometimes momentary contraction (associated movement), can be induced by causing the patient to forcibly close the eyes and open them suddenly.

The pupils should be examined, in case of suspected an-

omaly, in a dark room. Comparison of suspected pupils with those known to be normal, is very useful as a guide, especially for the detection of lazy reaction, which may be almost as important as an actually developed Argyll-Robertson pupil as an aid in diagnosis.

Senile pupils are more or less myotic and less active than those of younger persons.

LESSON XI.

The Deep and Superficial Reflexes.

The deep reflexes are numerous and their anomalies give very important indications of organic disease of the nervous system.

The reflex of the tendo achillis is constant in health; loss or exaggeration of it is a sign of organic disease. The only satisfactory way to examine it is with the patient kneeling (either in a chair or on a bed), with the feet and ankles free and the muscles of the legs in a state of complete relaxation. With the limbs thus placed a tap on the tendon will show the presence or absence of the ankle-jerk. When present, it is revealed in plantar flexion (extension) of the foot. The reflex movement must not be confounded with the jar or jerk communicated to the foot by the blow of the hammer,—the only movement noticeable in the absence of the reflex.

Exaggeration of the ankle-jerk is not so easy to estimate, unless the blow of the hammer cause a clonic movement, which is always a sign of organic disease, except in cases of volitional foot-clonus the characteristics of which are hereafter noted.

The best means of estimating exaggeration of the ankle-jerk is the presence or absence of *foot-clonus*. To examine for it the limb should be relaxed and the

knee slightly bent and supported by one hand of the operator, with the other hand the foot is firmly grasped near its extremity and suddenly and forcibly brought into dorsal flexion and there maintained with a strain that is not too forcible. If foot-clonus be present, the foot is rhythmically extended and flexed by alternate contraction and relaxation of the muscles attached to the tendo Achillis, and this vibratory movement may continue as long as the upward pressure is maintained; or the clonic movement may gradually die away. In normal persons when this maneuver is carried out, it is not unusual to observe one or two slow movements of the foot in extension, but they have no rhythm and are much slower than the movements of true foot-clonus. A person may imitate foot-clonus very closely, a fact which makes it difficult for the beginner to interpret the sign. Attention to certain peculiarities overcomes this difficulty. Commonly, if a patient be told to extend the foot as the examiner is about to flex it for the detection of foot-clonus several clonic movements occur closely resembling true foot-clonus. To be certain of the nature of these movements it is necessary to be sure that there is complete relaxation of the limb, or that no voluntary contraction of the posterior muscles of the leg occurs at the moment of performing the manipulation. As a further explanation of this spurious clonus the common tremor of the foot produced at will may be cited. If one raise the heel from the floor (while seated) and allow the weight of the limb to rest on the ball of the foot, by an effort of the will a rhythmical movement of the limb may be excited due to tremulous contraction of the posterior muscles of the leg—the heel dances up and down. Once excited this movement may continue automatically for sometime while the relative

state of contraction of the posterior muscles of the leg is continued. However, for this movement there must be also a corresponding activity of opposing muscles to insure the rhythm. In true foot-clonus the upward pressure of the hand of the examiner constitutes the opposing force, and the movement ceases immediately if this upward pressure is removed. In false foot-clonus as observed in hysteria and functional conditions, the simultaneous alternating action of opposing muscles causes a rhythmical movement of the foot which continues after the initiating upward pressure is removed (one of my patients could do it with either foot, but not with both simultaneously, as he naïvely confessed, after his voluntary clonus had been regarded by several observers as a true foot-clonus). True foot-clonus is invariably a sign of exaggeration of the ankle-jerk and indicative of organic disease of the nervous system. It never occurs in hysteria, functional disease, or fatigue.

The reflex of the patellar tendon (knee-jerk) is most frequently examined. It, like the ankle-jerk, is constant in health. Its absence is always indicative of organic nervous disease; its exaggeration has also the same significance. But it is much easier to determine absence of the knee-jerk than exaggeration of it, for within normal limits, like the ankle-jerk, it presents extreme variations. The best position for examination of the knee-jerk is that of flexion of the leg on the thigh at a very obtuse angle (not the position of flexion at right angle, with the leg hanging over the edge of a table, as almost always advised); the patient may be seated with the foot on the floor. The blow must be delivered on the tendon below the patella, not with the hand or a book, but with a proper percussion hammer the action of which can be judged and regulated. The weight of the blow

is of some use in judging the character of the reflex, but it has no absolute value; for normally a very light blow may cause a very lively reflex jerk. At the knee the blow is followed normally by extension of the leg on the thigh, a movement always more or less extensive and sudden, which *always follows the blow after an inappreciable interval.* At the knee the jar caused in the limb is less apt to deceive than at the ankle. The presence of the reflex, without extension or movement of the leg is often revealed by movement of fibres of the quadriceps muscle. The exact condition of the deep reflexes can never be known unless the whole naked limb is exposed to view.

Owing to the normal variations of the knee-jerk we require certain means of estimating whether it be pathologically reduced or increased. Normally the knee-jerks are practically equal: difference is always pathologic; but it is necessary to determine which is normal, which is diminished or increased. If one knee-jerk be lively, without the accompaniments of exaggeration to be later discussed, and the other slight or less, the presumption is that the feebler is abnormal. When both knee-jerks can be elicited and both are lively, it is probable that the livelier indicates pathologic exaggeration.

Jendrassik's experiment is a maneuver that causes the knee-jerk to become more apparent. It is performed by causing the patient to make some muscular effort with the hands or arms (clinching the fists, pulling forcibly with the hands clasped together, leaning the head backward against the hands tightly clasped behind it, usually with the eyes closed), while the examiner strikes the tendon. Often by this means a reflex appears that could not be elicited, or a feeble one becomes livelier. Feeble and equal knee-jerks

brought out by this procedure are not necessarily abnormal, though they may be so. Probably, contrary to the opinion generally entertained, this maneuver acts by causing complete relaxation of the limbs.

Permanent contractures of muscles may prevent the deep reflexes from appearing (mechanically restrained) as in some cases of chronic organic hemiplegia, or in some cases of hysteric contracture. In such cases, with no deep reflexes, we should not conclude that the reflexes are abolished, but rather say that they cannot be elicited. The absence of the knee-jerk and other deep reflexes is frequently accompanied by decrease of muscle tone, as a result of which the joints concerned can be over-flexed or over-extended. This is also true in certain cases presenting exaggerated reflexes, especially before there has been any development of contracture (early stages of organic hemiplegia).

Exaggeration of the knee-jerk is revealed by a clonic movement of the leg when the tendon is tapped; by patellar clonus when the patella is depressed forcibly with the limb extended. The clonic movements of an exaggerated knee-jerk can only be estimated as indicative of exaggeration through experience in the practical examination of patients; quality and distinctive peculiarities cannot be satisfactorily described. To an experienced observer it is not difficult to distinguish these clonic movements from the lively or tremulous knee-jerk of normal or hysteric persons.

Lively knee-jerks can be called exaggerated (pathologic), in the absence of clonic movements, only by deduction from the simultaneous presence of other signs of damage of the central motor neurons not immediately connected with the knee-jerk. Exaggeration of the knee-jerk is commonly associated with exaggeration of the ankle-jerk, both due to

the same cause. An exaggerated ankle-jerk aside from the quick movement of the foot when the tendo Achillis is tapped, is revealed by foot-clonus, a sign that has never yet been demonstrated except in organic disease of the nervous system, the characteristics of which have already been discussed.

, Lively deep-reflexes on one side associated with absence of the skin reflexes (abdominal, cremasteric, etc.) on the same side, is a state that justifies a presumption of the existence of organic disease of the nervous system.

Another certain sign of organic nervous disease very frequently associated with exaggerated knee-jerk and foot-clonus, though often existing alone, is the so-called toe-phenomenon, or sign of Babinski. This sign, by deduction, may reveal the pathologic character of a lively knee-jerk. Its absence constitutes a presumption that a lively knee-jerk, without clonic movements and without foot-clonus, is physiologic.

Babinski's sign deserves very careful study, owing to its great value as an indication of organic nervous disease. It is necessary to know how to examine for it, how to avoid error in interpreting it, and to be familiar with certain variations of the reflex movements of the toes which sometimes precede, accompany, or replace Babinski's sign and have practically the same significance.

When the sole of the foot is irritated the reflex movement observed is called the plantar reflex. The plantar reflex is made up of plantar flexion of all the toes, dorsal flexion of the foot, and possibly flexion of the knee and contraction of the tensor vaginae femoris muscle. Babinski's sign is a variation of this reflex, and is essentially extension of the great toe, though all the toes may make this move-

ment simultaneously. Babinski's sign occurs in infancy and early childhood normally; it also occurs in strychnia poisoning; it has never been observed in hysteria or normal persons (cases cited to the contrary are all open to the objection of possible error of observation). The most frequent source of error lies in the fact that irritation of the sole causes dorsal flexion of the foot, and thus all the toes are carried upward, a movement which may readily be mistaken for extension of the toes, especially if the toes flex but slightly, or not at all, as may be the case. The classic sign is actual extension of the great toe, which is best observed by giving attention only to the great toe and its joints (grasping the dorsum of the foot with one hand in such a way as to leave the toes free and conceal, or eliminate, the upward movement of the foot. The irritation of the sole should be made with a blunt needle, but in some cases other forms of irritation suffice (the finger, a pencil, etc.). The reaction occurs also very markedly in many cases when cold or heat is applied to the sole. Absolute relaxation of the limb should be obtained. The needle should be applied at many points on the sole. The examination should be several times repeated. If the toes flex frankly whenever the sole is pricked, it may be concluded that the reflex is normal; if they are immobile, the examination should be frequently repeated before reaching a conclusion, for such a phenomenon may precede the development of Babinski's sign.

Babinski's sign may not vary in certain cases but occur regularly to the stimulus: this is its frank manifestation. It may occur alternately with flexion of the toes, or only from time to time during repetition of irritation of the sole. It always has the same significance; for it never occurs, even occasionally, in health. Another variation of this plantar re-

flex recently cited by Babinski and worthy of special remark, is abduction of all the toes (they spread out like the ribs of a fan). This movement may occur with or without extension of the great toe. It is probably a variation of Babinski's sign. It has been observed to precede the development of a frank sign of Babinski, and it is very frequently observed in chronic organic hemiplegia. If it has not the diagnostic value of extension of the great toe, it has a very high presumptive value as a sign of organic disease, and a diagnosis of functional trouble should never be made in its presence; in any case it should be regarded as rendering a diagnosis uncertain, with probability of organic nervous disease.

I have recently noted another variation of the plantar reflex which apparently is a variation of Babinski's sign: with the patient lying on his back in bed with the legs extended, when the sole of the paralyzed limb was irritated occasional extension of the toes occurred, but invariably there was a movement of the foot inward and slight plantar flexion of the foot, evidently due to contraction of the peronei muscles. This movement of lateral flexion of the foot is in contrast with the normal dorsal flexion that occurs as a part of the normal plantar reflex. I have observed it only in cases in which Babinski's sign ultimately became frank, or in which Babinski's sign occurred occasionally.

In conclusion of this discussion of the toe-phenomenon, it should be added that the extension of the toe may take place suddenly or in a slow tonic movement, the latter being characteristic of its frank manifestation.

There are many other more or less valuable signs of organic disease of the nervous system. To discuss them in detail would take us too far from our primary object of study, and therefore they are only briefly mentioned.

Combined flexion of the trunk and thigh (Babinski) indicates organic nervous disease. *Struempell's sign* (tonic contraction of the tabialis anticus when the knee and hip are flexed) is seen only in organic paralysis. *The sign of the platysma* (Babinski) is an accompaniment of organic hemiplegia.

Optic nerve inflammation and atrophy have great importance as related to organic nervous disease and insanity.

Anesthesias and hyperesthesias are important. General and complete anesthesia is never a sign of organic nervous disease. Disturbances of sensation in known areas of distribution of nerves indicate organic disease (peripheral). Anesthesia, greatest at the distal parts of the extremities, decreasing toward the trunk, is charatceristic of organic cerebral disease. Segmental anesthesia is functional; so is segmental hyperesthesia; but that related to nerve trunks or their distribution is organic.

Fibrillary twitchings are almost invariably a sign of organic disease, and of great significance in insanity when they are seen in the tongue, lips, and face.

Intention-tremor usually indicates organic disease (cerebellum).

Aphasias, and drawling, stumbling, scanning speech (asynergy), are organic symptoms.

Ataxia, asynergy, astereognosis, and loss of muscle-sense must be interpreted with relation to other signs of organic cerebral disease.

Apoplectiform and epileptiform attacks in the beginning or during the course of insanity are signs of organic cerebral disease. They may be the first symptoms. If they occur in a person not subject to epilepsy they practically in-

dicate the organic nature of subsequent mental disturbance. Late epilepsy is only to be distinguished by the course, unless other signs of organic disease are present. *Uremia* and intoxication must be considered in diagnosis in connection with such attacks.

A new and most important means of diagnosis, is examination of the cerebro-spinal fluid obtained by lumbar puncture. Organic diseases of the meninges (tabes, paretic dementia, meningitis) cause cytologic and chemical alterations of the fluid which are never found in functional nervous disturbances.

LESSON XII.

The Etiology of Insanity.

The statistics of insanity gathered in the numerous institutions of the world are the basis of study of causes. Statistics are, in the nature of things, imperfect, for only a certain proportion of the insane is found in hospitals for the insane. Late statistics prove that for every thousand of the population there are from three to six insane persons. The reported proportion varies in different countries, but is always below the actual proportion. The number of insane persons is actually and ostensibly gradually increasing, because care of the insane prolongs their lives, increasing thus the insane population; and of late years great care in diagnosis discovers insane persons that were formerly disregarded. Insanity is probably increasing actually because certain causes are more active. In the first place, the insane are better treated and discharges of recovered or improved patients increase; patients that would have been doomed to dementia and death without possibility of progeny are now in large and increasing number given opportunity to reproduce their kind in the fullest sense. This partly explains an evident increasing predominance of heredity in insanity.

The consumption of *alcohol* and other stimulants increases more rapidly than population. This is an important cause of insanity, either directly, or in descendants as a

result of inheritance of nervous defects engendered in progenitors by excessive use of such poisons.

Syphilis, always a menace to the nervous system of one that has contracted it, grows more and more widespread, because of the constantly increasing facility of intercommunication between country and towns and cities. It will be remembered that in the fifteenth century syphilis first became generally known—a period when international relations began to develop rapidly. Those that traveled furthest (Columbus) were accused of bringing it back. The Spaniards blamed the Indians; the French blamed the Italians. It was merely the facility of promiscuity of nations that brought an ancient malady into prominence because of increase of commercial or belligerent intercourse.

Syphilis exerts an increasingly bad influence on the nervous system for other reasons than the disease itself. These are found in the strain of modern life and civilization on the nervous system, leading to over-excitement and exhaustion, which, though in themselves capable of causing insanity, seem to determine a selective action of syphilis on the nervous system. Locomotor ataxia and paretic dementia are caused by syphilis, but they are widespread only in highly civilized countries. The Arabs of Northern Africa are syphilitic but very rarely tabetic or paretic.

There is an *excess of insane males* over insane females, probably as a result of the greater strain of work and the excesses to which men are exposed.

Races present variations of mental morbidity, probably owing to certain special influences affecting them, as well as to inherent conditions. The Jewish race is notoriously neurotic, possibly as a result of inbreeding; for as a race the

Jews are temperate and on the whole less exposed to venereal disease than others.

Occupation as a possible cause of insanity is hardly worth discussing, aside from the fact that certain forms of work expose to influences that act as exciting causes (lead, noxious gases).

The *predisposing causes* of insanity are *hereditary* or *acquired.* A certain person having much insanity in ancestry is said to be predisposed by heredity to insanity; another that presents certain neurotic or neuropathic symptoms is predisposed to insanity. If there be no insane or neurotic ancestry the predisposition may be *congenital* (symptoms shown early), or *acquired* (injurious influences during development or later).

If insanity develop on the basis of predisposition, predisposition is the fundamental cause; exciting causes are subsidiary. Thus when it is said that a person is predisposed to insanity, either he has an insane ancestry, or he presents certain nervous and mental symptoms that are known to precede often the development of insanity.

Hereditary predisposition to insanity is proved by the *history; congenital* and *acquired* predisposition are revealed by symptoms present in the individual. An insane ancestry casts suspicion on descendants, and this suspicion is called hereditary predisposition. When certain neuropathic symptoms are present in an individual they justify a diagnosis of a predisposition to insanity. Their relation to heredity (insanity, neuroses, etc., in progenitors) can only be established by the history of the family.

The signs of a neuro-psychopathic predisposition may be indicated rather than defined: infantile convulsions; night-terrors; incontinence of urine in childhood; striking eccen-

tricity of character not due to education; lack of development of normal moral feeling under proper education; marked intellectual dullness; delirium in slight fever; marked intolerance of alcohol in youth; useless lying; want of parental or filial affection; cruelty; special endowment in a limited direction with low powers in other directions; great mental and emotional impressionability; circulatory and vasomotor instability; epilepsy; hysteria; hypochondria; general nervous weakness devoid of sufficient cause; illogical suspicions; illogical selfish argumentativeness and unreasonable obstinacy—these are some of the many ways in which predisposition to insanity may be indicated, but which may or may not be followed by insanity.

Insanity once developed, a history of such symptoms preceding it may help to determine the nature of the mental disease.

The factors that make up predisposition are the basis of psychic degeneracy. Aside from primary organic and infectious insanities, almost all psychoses are of a degenerate nature. The closer the so-called simple and accidental insanities are studied the more apparent it becomes that they are only one link in the chain of psychic degeneracy. A simple melancholia is as sure a sign of weakness of nervous constitution as is a perfectly developed system of delusions of persecution, only they indicate different degrees of psychopathic "degeneracy" or weakness: melancholia may pass; the systematized delusions remain.

Insanity, with a few organic exceptions, is a sign of inferiority of nervous and cerebral constitution.

Insanity is not hereditary in the strict sense of the word; feelings and thoughts, normal or abnormal, are not inherited. However, it is convenient to speak of *hereditary in-*

sanity. The inheritance is physical,—a physical constitution, which, being like that which engendered it, is apt to display similar anomalies of function.

The history of families presenting insanity permits us to distinguish three kinds of insane inheritance: (1) direct (mother or father or both insane); (2) indirect or collateral (insane uncles, aunts, or cousins;) (3) atavistic (insanity in grandparents, great-grandparents or in other ancestral lines).

When the insanity is of the same kind in various members of a family the heredity is called *like;* when varied, *unlike* or *polymorphus.* Often the neuroses beget insanity and *vice versa;* this is called *transformed* heredity.

A congenital and hereditary physical condition of weakness that predisposes to insanity is frequently traceable to alcoholism, morphinism, syphilis, general enfeeblement, etc., in the parents.

It is probable that during intra-uterine life injurious influences affecting the mother may affect the child and thus cause imperfect development.

Accidental predisposition results from all influences that tend to weaken the organism or to retard or arrest its development. As a rule, accidental or acquired predisposition results from influences operative during the earlier years of life. Of these the most important are severe diseases, anemia, sexual excesses, drunkenness, and head injuries.

The preponderating importance of an inherited or acquired predisposition to insanity is most strikingly shown in the influence of certain physiologic phases of life to favor the outbreak of mental disease.

Childhood may be said to exert no influence; the insanity of childhood is comparatively rare and almost always

the direct expression of a defective nervous organization evidenced by other signs.

Puberty is a very dangerous period for the defective nervous constitution. A large percentage of cases of insanity begin during this phase of development, and in the absence of any direct or sufficient exciting cause.

The climacteric in women, the period of sexual involution, also favors very markedly the development of insanity. In a large proportion of insane females, the beginning of the disease coincides with this biologic phase. For women this phase, in general, extends from the fortieth to the fiftieth year.

There is said to be a *male climacteric* from the fifty-fifth to the sixtieth year; but male climacteric insanity, so-called, is *senile insanity.*

Menstruation has a profound effect upon the mental state of many women, and in some cases it is attended by formal insanity, which may be temporary or periodic; but it may finally be continuous. Menstruation also often aggravates temporarily chronic insane states.

Pregnancy, in the predisposed, is a frequent cause of alienation. The mental disturbance may begin and cease with pregnancy, or continue.

The puerperal state is a fertile cause of mental disease, either temporary or chronic in nature. In such cases it is necessary to distinguish between the functional psychoses developed on the basis of a marked predisposition and insanity due to an infection, uremia, embolism, meningitis, etc.

The period of lactation also favors the occurrence of insanity in the predisposed, probably through the anemia and exhaustion it may cause.

THE EXCITING OR DIRECT CAUSES OF INSANITY are such as to act immediately to bring the outbreak. They are *mental* or *physical* or *both.*

The mental causes may act suddenly or gradually. Mental shock, sudden sorrow or joy, fright, the psychic shock attending physical injuries, are examples of mental causes that may induce insanity immediately or after a comparatively short interval. Sorrow, care, disappointment in life, in love, etc., are mental causes that act more or less slowly to induce mental disease.

PSYCHIC CONTAGION is sometimes a cause of insanity in the weak-minded. It usually occurs in families: one insane person in the family causes others to accept delusions, hallucinations, etc.

THE PHYSICAL AND SOMATIC exciting causes are numerous. Head injuries may cause insanity without the intervention of mental shock (organic cerebral injury).

The neuroses, *epilepsy, hysteria, and chorea,* are regarded as causes of insanity because subjects of them often develop mental disease. Epilepsy often becomes associated with insanity. Hysteria is a mental anomaly, and insanity following it is the development of the primary psychoneurosis. Chorea is practically always accompanied by mental disturbance, and choreic insanity is only a more marked development of a fundamental element of the symptom-complex.

More direct physical causes are *arterio-sclerosis, cerebral hemorrhage, cerebral softening, cerebral tumors,* acute and chronic disease of the meninges, etc.

Disease of the internal organs sometimes causes insanity—pulmonary tuberculosis; disease of the heart; gastro-intestinal diseases; auto-intoxication; disease of the thyroid

gland; disease of the sexual organs; disease of the kidneys, etc.

Infectious diseases are frequent causes of insanity. Among the more important are syphilis, typhoid, and la grippe.

Intoxication holds a very important place in the etiology of mental disease: alcohol, morphine, lead, mercury, etc.

It is a matter of careful judgment in a case of insanity to correctly estimate the relative importance of predisposing and exciting causes, and of value in prognosis.

LESSON XIII.

The Course and Termination of Insanity.

Rarely the outbreak of insanity is sudden after trauma or mental shock, or after an epileptic attack; usually the insane condition develops gradually through a prodromal period presenting general bodily disturbances, sleeplessness, irritability, moodiness, depression or excitement.

The course of insanity, its duration and variations, presents several types.

Transitory insanity is that which lasts from a few minutes to several hours; it is usually of very sudden onset with sudden termination in lucidity. Such attacks of transitory insanity should be examined with a view to determine their possible relation to epilepsy (equivalent) and hysteria, or to some form of intoxication (alcohol, belladonna, noxious gases); delirious attacks that have no discoverable physical cause must be attributed to inherent brain defect or to some insidious cerebral disease (dementia paralytica).

Acute insanity is conventionally understood to cover cases that gradually develop and last from six or eight months to a year, with moderate intensity of symptoms.

The course of an acute or sub-acute insanity may be interrupted by periods of remission of the acute symptoms; and sub-acute cases may present periods of aggravation with very acute and active symptoms.

Chronic insanity is a term properly applied to any case of insanity that lasts more than a year. Chronic insanity may be the termination of acute or sub-acute insanity, or it may be that the type from the beginning is that of chronic insanity. In the latter case it is the character of the symptoms that justifies the use of the term chronic (paranoia). Chronic insanity may present acute exacerbations of longer or shorter duration, characterized by symptoms of the acute forms of mental disease.

Periodic insanity means mental disease that occurs and runs its course with a certain periodicity. Usually the attack is acute and of comparatively short duration. This is repeated with regularity or at irregular intervals. When the attacks are widely separated we call the case one of recurrent insanity, in which the types in different attacks may be the same or different.

Circular insanity is a type of periodic insanity characterized by a certain procession of mental symptoms; for example, a period of melancholia is followed by a period of mania, and this by a period of lucidity. The order and the length of these periods vary and that of lucidity may be practically wanting. It may be noted that the so-called functional psychoses often present a certain procession of symptoms that suggests the phases of circular insanity: mania is usually preceded by a period of depression or melancholia, and it may be followed by a similar period of depression; it may be difficult or impossible to distingush a period of excitement in the course of melancholia from that characteristic of mania. These facts only serve to demonstrate the fundamental relation of all psychoses in a psychologic sense.

The termination of acute insanities may be recovery (cure); recovery with defect (slight dementia); secondary

delusional (chronic) insanity; secondary dementia with absence of all active mental symptoms. *Secondary agitated dementia* is dementia with motor excitement; *apathetic dementia* without motor or emotional excitement.

There are various degrees of secondary dementia extending from that difficult of recognition to that representing absolute absence of mind. When the active symptoms of insanity have subsided, if no signs of loss of mental vigor remain, the patient is regarded as cured; if dementia be noticeable though the patient is able to maintain a place in society, he is called a case of recovery with mental defect (improved).

The vast majority of patients discharged from institutions for the insane are secondary dements. "Recoveries" are practically always doubtful; they must stand the test of time. The so-called "recoveries" in statistics of hospitals for the insane bear a searching examination for dementia and last indefinitely only in a small proportion of cases. In general, restoration of mental integrity after an attack of insanity is rare. This statement is made with full knowledge of the improvements that modern treatment of the insane has brought about. Insanity remains what it has always been,—a stigma of inferiority. With few exceptions, insanity is a manifestation of an imperfect organization, and therefore will be regarded as it has always been regarded. An effort to have insanity looked upon as a disease like the measles or whooping cough, will never make headway except among the insane and weakminded philanthropists. Insanity is a sign which justifies a presumption of defective organization; and a person that has manifested it will always be regarded as different from those that have not. Science now teaches the truth of this; but it was taught the world by experience long

before science occupied itself with the nature of insanity. But insanity in itself is no more a cause for shame than any other accident of life; it should excite pity and care, and every effort should be made to restore the insane and to keep them near mental health. A natural deduction from these remarks is that the true cure of insanity lies in prevention; but here we encounter an ideal that cannot be realized.

DEATH may be a termination of insanity. It is the normal result of organic insanities; it may occur from exhaustion due to insanity; it may result from accidents favored by the insane condition; it may be the consequence of the insane ideas (suicide); it may result from intercurrent infections favored by the insane state; an insane person may die from causes having no relation to insanity, like any other person.

THE PATHOLOGIC ANATOMY OF INSANITY, properly speaking, does not exist. Many cases of insanity show no post-mortem changes other than those due to the manner of death—cerebral anemia, hyperemia, etc. Gross anatomical changes are common—alterations of the meninges, adhesions, etc., but these are neither specific nor characteristic. Minute changes in the nerve-cells are found, but they also are not distinctive.

Gross and minute anatomical lesions of the brain are found in idiocy, imbecility, and the organic insanities. There are findings more or less characteristic of paretic dementia, and an atrophy and loss of brain weight with meningeal changes characteristic to a certain extent of secondary dementia.

THE DIAGNOSIS OF INSANITY presents two problems: diagnosis of insanity *per se;* diagnosis of the form or nature of the disease.

It may be easy or very difficult to diagnosticate insanity; it may be easy or very difficult to classify the case. The ease with which insanity is recognized in many cases by the public is notorious; the frequent disagreement of alienists suffices to emphasize the difficulty encountered in some cases. In certain cases it may be necessary to observe an individual for an extended period under favorable circumstances, before a conclusion can be reached.

It is usually possible to make a positive diagnosis in the organic insanities; here the physical symptoms are of great additional assistance.

In functional psychoses the difficulties arise from the fact that all somatic signs may be wanting, and we are forced to base our judgment on mental symptoms alone. The mental symptoms that constitute insanity may be assumed or dissimulated; a sane person may imitate mental disease; an insane person may imitate sanity. Simulation of insanity is common in the effort to escape the consequences of crime; dissimulation of insanity is often practiced to escape the consequences of insanity—confinement and opposition to the impulsion of delusional ideas.

Other difficult cases are those that concern the disposal of property, in which the existence of mental soundness determines the legality of donations, wills, etc.

THE DIAGNOSIS OF RECOVERY with reference to decision of the question of restoring a patient's personal liberty is always a matter requiring great care and judgment. The gravest error in this sense is to mistake dissimulation for recovery. Likewise, *remissions* may appear in the guise of recovery. It is the uncertainty inherent in the nature of insanity that makes prolonged detention of the patient neces-

sary after all acute symptoms of insanity have disappeared.

The fact that the diagnosis of insanity is often difficult is no exception to the general rule in pathology, and the problems presented in mental disease are no more enigmatical than those that confront us in internal medicine.

LESSON XIV.

Classification of Insanity.

For practical clinical purposes we may distinguish two classes of cases of insanity: (1) organic, (2) functional. Insanity is always a symptom, and therefore always indicates some form of physical disorder of the brain.

When signs and symptoms of organic disease of the nervous system (brain) and the mental signs and symptoms that constitute insanity co-exist, or when the mental symptoms can be referred to some material cause (poisons), the case is one of *organic mental* disease.

When changes in the cortex reveal themselves only in mental disorder, and when the mental symptoms are not directly referable to destructive alterations of the cortex, or to some material cause known to affect the cortex especially in its mental functions, we may for practical reasons speak of the insanity as *simple* or *functional.*

Organic insanity is such only because of the co-existence of signs and symptoms or organic disease of the nervous system and symptoms of mental disease; otherwise, in the absence of mental symptom the case is one of organic nervous disease merely. *Thus organic and functional insanities are revealed by the same kinds of symptoms as far as the insanity itself is concerned.*

Within the domain of purely mental manifestations

there are symptoms as surely indicative of organic disease of the brain as are certain physical signs and symptoms. Such mental symptoms are always those of loss of mind (dementia) or of want of development of mind (idiocy).

An insanity primarily functional, may pass into dementia (become organic.)

The symptoms of insanity, since they are always mental, are made up of anomalies of *thinking* and *feeling* and *acting*. The symptomatic type of insanity is most aptly named from the predominating mental symptoms. Thus melancholia and mania are so named because anomalies of the feelings dominate the clinical picture; delusional insanity indicates the predominance of ideational anomalies; dementia shows that loss or inactivity of mind is the most prominent symptom.

Since insanity is essentially a disturbance of mental functions the first group of insanities should be made with reference to the predominance of certain mental symptoms that have been empirically established as representative types of the psychoses.

A. Emotional.
- a. Depression, — 1. Melancholia.
- b. Exaltation, — 2. Mania.

B. Intellectual.
- a. Distortion, — 3. Delusional.
- b. Exhaustion,
  - 4. Hallucinatory (confusional) delirium.
  - 5. Dementia (stupor).

All insanities known may be symptomatically classified in these five groups. It is by the presence of these symptoms that the existence of insanity is determined. But study of cases of insanity at once makes it apparent that considera-

tion of the mental picture alone is inadequate; for, aside from the possibility of being but an aspect of organic insanity, these mental symptoms may present numerous peculiarities besides their immediate psychic qualities. A melancholia may be an episode in the course of a senile condition; it may be the result of intoxication (alcohol); it may be a phase of a primary delusional insanity (paranoia). Any of the symptomatic forms of insanity may present peculiarities or be associated with other signs and symptoms which make it necessary to go further, and classify the individual as well as his symptoms.

When insanity of any functional type presents certain peculiarities of symptomatic detail, in variability, origin and course, the disease-picture has a profounder meaning—it is a symptom of psychic degeneracy.

Aside from certain peculiarities of mental symptoms, often it is the history or the course of the mental anomaly that makes a diagnosis of its degenerate significance possible. All forms of functional insanity are more or less degenerate, but certain forms are strikingly degenerate, either owing to their symptomatic peculiarities or their course.

The frankly degenerate functional insanities differ from the simple insanities in cause, evolution, course, and termination. However, as will be seen later in the descriptions of the types of insanity, in certain cases it is impossible to draw a distinct line between simple insanity and degenerate insanity.

Some of the peculiarities that distinguish the forms of frankly degenerate insanity are:

1. Simple recurrence.
2. Periodicity.
3. Variation of symptomatic type (circular).

4. Remission with relapse and continuance of the original course.

5. Long period of development (long prodromes).

6. Initial and primary intellectual symptoms (delusions).

7. Logical systematization of delusions (alterations of the personality).

8. Absence of adequate cause.

9. Previous rudimentary symptoms of insanity (phobias, imperative ideas).

10. Association with marked signs of physical degeneracy.

11. Development out of a degenerate neurosis.

THE DEGENERATE INSANITIES may be conveniently grouped as follows:

A. Periodic.
- a. Recurrent insanity.
- b. Periodic insanity.
- c. Circular insanity.

B. Paranoiac.
- a. Rudimentary paranoia (phobias).
- b. Reasoning insanity.
- c. Early paranoia.
- d. Late paranoia.

C. Neurotic.
- a. Epileptic.
- b. Choreic.
- c. Hysteric.
- d. Hyponchondriac.

This enumeration is not exhaustive; new detailed types of mental degeneracy are constantly being added.

Any of the functional insanities, simple or frankly degenerate, may through chronicity, become organic.

THE ORGANIC INSANITIES, as here understood, include all cases of mental disease that can be referred to a physical basis or a material cause.

A. Insanity due to gross brain disease.
   1. Atheroma.
   2. Hemorrhage.
   3. Softening.
   4. Inflammation.
   5. Tumors.
   6. Brain atrophy.
   7. Trauma.

B. Insanity due to infections.
   1. Syphilis.
   2. All other forms of infections.

C. Insanity due to intoxication. Alcohol, lead, etc.

D. Insanity due to auto-intoxication.
   1. Uremia.
   2. Diabetes.
   3. Thyroid disease.

The organic insanities are either the result of physical agencies affecting the brain in its functions, or of organic changes in the elements of the brain itself.

Of all forms of insanity, those included under the term "simple" are the rarest; next in order of frequency are

those primarily organic in nature; and most frequent of all are the degenerate insanities.

The cases of secondary dementia that result from primary functional states all practically belong to the organic group.

According to this grouping of cases the diagnostician has three problems to solve:

1st. Is the patient insane? A question to be answered solely by examination of mental symptoms.

2d. Is the insanity functional or organic? A question to be answered by exclusion of signs and symptoms of organic causes of functional disturbance (intoxication, infection, gross and minute brain disease).

3d. In the absence of signs of organic disease, is the insanity simple or degenerate? This is the most difficult question to answer, because it is very difficult to limit exactly "degeneracy" by definition, and because the functional disturbance, though apparently simple, may be but the initial stage of psychic degeneration. For this reason it may be impossible to make a decisive diagnosis without prolonged observation.

In the description of the types of insanity to follow the points that enable an immediate solution of the question of marked degeneracy will be made plain.

Of the apparently simple functional insanities certain ones are often signs of degeneracy, especially mania and acute primary dementia. These clinical pictures, when produced by material causes—alcohol, physical exhaustion—may be without degenerate meaning.

It is also to be remarked that mania is very disastrous in its ultimate effect on the mind; it is only rarely that active maniacal symptoms subside without leaving a perm-

anent mental defect—dementia—due to organic changes in the brain.

Mania is very frequently a symptom of organic disease of the brain (intoxication, paretic dementia); if it does not indicate organic cerebral disease, it is next most frequently a sign of degenerate insanity—recurrent, periodic or circular, or an episode of epileptic insanity.

Of the simple forms of insanity, emotional depression is the most benign as such, and also the least open to suspicion of being a functional sign of *marked degeneracy*. But it also occurs in the course of degenerate insanity, and also as one of the symptoms of organic insanity. However, as will be seen later, melancholia like all the general functional disturbances that constitute the insane state must be judged with reference to its origin, its quality, its course, and its relation to other mental symptoms.

There is a relation between the emotional and the intellectual symptoms of insanity that is worthy of special attention,—it is a psychologic law. It will be understood best by examples. One learns that he has fallen heir to a great fortune; the natural reaction is that of pleasure (exaltation). Let the news prove false and the reaction is that of depression (melancholy). This shows how idea may give rise to an emotional reaction. On the other hand, a primary emotional state may be the origin of the intellectual state. No better example of this can be cited than the usual effect of alcohol: the emotional state induced is primarily gay; as a result, things are of a rosy hue and immediately ideas become clearer and brighter and not in accord with facts—delusional. When the primary emotional effect of the alcohol subsides there is emotional depression with a consequent delusional (intellectual) attitude of mind. Like-

wise, in insanity primary emotional symptoms may be the basis of intellectual symptoms; primary intellectual symptoms may be the basis of emotional symptoms. It is therefore very important to determine, if possible, the causal order of relation between emotional and intellectual symptoms—to determine what is secondary in order of origin. In other words an insane person may be depressed or excited because he entertains delusions; or he may entertain delusions because he is depressed or excited. From a practical standpoint this distinction is important because primary emotional states as a cause of intellectual disorder are far more favorable than primary intellectual states as a cause of emotional disorder.

LESSON XV.

Emotional Depression.
(Melancholia.)

The most prominent characteristic of melancholia is sadness; whenever this symptom occurs, we speak of melancholy, and of melancholia as a form of insanity if the emotional depression be pathologic and not a complication of some other form of mental disease.

The pathologic state of melancholia is best understood by comparing it with normal emotional depression that results from some adequate cause. When one is suddenly striken by some great sorrow, a state of depression takes possession of the whole mental being and all activity is interfered with, consciousness being entirely filled with a painful state of feeling that inhibits thought unrelated to it; ordinary normal moral interests pass unregarded; the actions, attitude, and facial expression are in harmony with the emotional state—physical inactivity, lack of muscular tone, relaxed features; there is desire for solitude and retirement from all that is out of harmony with the emotional state; the organic functions become sluggish and appetites are lost. A certain egotism is thus apparent, and often, if not always, the sadness is purely selfish in the sense that it arises out of a moral wound to the ego. This normal depressive reaction is of comparatively short duration, and

the sufferer has enough reason and force to try to overcome the depression by seeking active distraction from the pain, in which he finally succeeds completely.

A state of normal depression may be the beginning of a pathologic state of melancholia, or the depression may develop without apparent or adequate cause in external conditions. The psychic elements that render it possible to decide that depression is pathologic are: (1) absence of adequate external cause; (2) absence of reaction to influences that modify or overcome normal mental depression; (3) exaggeration in intensity and duration of the elements that characterize normal depression; (4) the expressed feeling of helplessness and hopelessness of relief of the painful state, for normal depression is never felt as a hopeless state; (5) absolute self-concentration in the depression; (6) tendency to project mentally the subjective sadness to include others—relatives and friends and finally the whole world; (7) consciousness of mental disease often expressed; (8) self-reproach.

If melancholia has begun in normal depression, the transition from it is marked by the development of some of the characteristics enumerated.

Simple melancholia is pathologic depression and mental inhibition without delusions and hallucinations. It presents many degrees of intensity and may be the preliminary stage of melancholia with delusions, etc. It is the most common form of mental disease. When of spontaneous origin and recurrent it is highly indicative of a mild degree of degeneracy.

Melancholia with delusions is pathologic depression accompanied by elementary anomalies of the senses and the intellect. It is the form commonly met in hospitals.

for the insane. Clinically, several forms are to be distinguished in accordance with the predominance of certain symptoms. Thus, we have a passive melancholia and an active melancholia, a moral melancholia and an hypochondriac melancholia.

The type in some cases may change with the continuance of the disease; for example, an active melancholia may become passive; the mental symptoms may combine hypochondriac and moral delusions.

When depression and delusions co-exist, in order to make a diagnosis, it is necessary to determine the relation between them; for depression may precede and be the cause of delusions, or delusions may precede and be the cause of depression. When unable to determine immediately this relation, we must remain in doubt and wait for time or the course of the disease to enlighten us.

Melancholia, in any case, may be the manifestation of a periodic, recurrent, or circular psychosis, and this point can only be determined with certainty by the history of previous attacks or the course of the disease. It may be a mental symptom of organic cerebral disease.

The mental symptoms of a typical case of melancholia with delusions present two stages of development, one of simple initial depression, and a second delusional state. The initial stage may be long or give place quickly to the second.

Initial stage of depression: the patient is sad, inactive, sick, disinterested, neglects or abandons his usual duties, is careless of personal appearance, and seeks to avoid contact with others; or if he seeks consolation, it is to express his feelings of ill-defined fear, or to ask protection from his thoughts of death or suicide. The persistence of this

depression leads to a subjective search for its cause, and this is found in his own moral delinquencies or guilt. He is justly sad as the consequence of his own acts—he has been a liar; he has been a sinner; he has committed crimes against God and man; his sadness is a moral punishment to be increased by legal punishment; his life now and hereafter has been ruined by his own acts, and all hope is destroyed. Hallucinations are added: he sees the officers of the law; hears his prospective punishment and torture described; sees his coffin prepared; hears preparation for his torture. The punishment is even extended to include wife and children, or the whole world is to suffer for his crimes. The feeling of horror may induce a passive state (passive melancholia) or even stupor, or an agitated state of violent despair (active melancholia).

In hypochondriac melancholia, the fears entertained are about the patient's own body. He fears for his health and attributes imaginary or actual physical symptoms to his own sins. The cause of his suffering is onanism, syphilis, or a life of excesses. He develops corresponding hallucinations: he sees his body rotting away; smells odors of decay; feels that his intestines are in a state of gangrene; has communicated his disease to everybody. Here there is always the element of self-accusation, as in other forms of melancholia.

Suicidal impulse is the natural result of melancholia, and it is the greatest danger in the disease; murder of children or relatives may be the result of delusions, but the sacrifice of others is in obedience to the desire to save them from suffering. In agitated melancholia acts of personal violence may be due to wild impulse of self-defense. *No depressed patient should ever be trusted;* for the impulse to suicide

occurs in almost every case, and if absent may appear at any moment. Fear of death is no guarantee against suicide; and denial of intention may be preparation for suicide.

Special symptoms of melancholia require discussion in detail.

Hallucinations, etc., are of a fearful or depressive character in harmony with the emotional depression and the corresponding delusions. They occur in one or in several of the senses at the same time. The patient hears reproachful voices; sees those that come to arrest him, or the fire prepared to burn him. He smells or tastes poison in his food; noxious gases are forced into his room at night, to poison or suffocate him. If hypochondriac, bodily feelings are misinterpreted as signs of foul disease or decay; parts of the body have changed to glass or stone; the alimentary tract has become permanently obstructed, etc.

The delusions may be in direct relation with errors of the senses, or exist independently of them; but they are always of a depressive nature, and always accompanied by self-accusation. They concern the past as well as the present and future. If the patient is persecuted he deserves his persecution even though he may attempt to escape it.

Memory remains practically undisturbed, except in possible periods of very great excitement or profound stupor.

Speech is slow, low, and often tremulous. The voice may be only a whisper. The patient may speak in monosyllables or be silent and give only slight signs of understanding. He may show only by change of facial expression or slight movement or signs that he understands. Speechlessness may be due to delusions and hallucinations—he is commanded as a punishment not to speak; he will be punished for speaking; he cannot speak without sinning, etc.

Self-mutilation and suicide are always to be feared. Mutilation is due to delusion. A patient may castrate himself or cut off his genitals because of imaginary sexual sin. "If thy right hand offend thee, cut it off" may be a cause of self-mutilation in melancholia with religious coloring.

Suicide is attempted in many ways—by starvation, by immersing the head in a pail of water, by opening a vessel with a needle, by hanging, etc. The ingenuity and cunning of melancholiacs under surveillance to attain their end is surprising, and hence the necessity for the most minute and systematic care to prevent suicide.

Often the patient is physically passive, but there may be a marked state of negation and resistance to all efforts made to excite movement. Voluntary movements are slow, often undecided, and initiated movements often are not completed. The attitude is relaxed, and the facial expression sad,—the brow contracted, the head bent down, the eyes partially closed. If agitated, the patient may walk about constantly wringing his hands and bewailing his fate. A state of hypertonicity of muscles is occasionally observed.

Refusal of food is a common symptom in melancholia. It may be due to lack of appetite, gastro-intestinal disease, and the general inactivity; to fear of poison; to fear of sinning by eating; or to a desire to die.

Sleeplessness is a very common and obstinate symptom at the height of the disease. On the other hand, somnolence may be one of the striking symptoms in the early stage of simple depression, explained by the desire of the patient to escape from his melancholy.

The circulation is altered. The pulse is often slow and hard and small, the extremities blue and cold and sometimes edematous. The state of the circulation is probably

responsible for the common feeling of *precordial distress* or anxiety, which may reach such intensity as to cause an outbreak of violent wild despair called *raptus melancholicus.*

Respiration in profound melancholia is slow and superficial.

The tongue is coated, and the lips and teeth may be covered with sordes in extreme cases.

The urine is diminished in quantity and the solids are below the normal amount.

Etiology, etc. Melancholia in all its forms is more frequent in women than in men. It occurs at all ages, but is most frequent between the ages of twenty and thirty years. Puberty and old age have an unfavorable influence on its course. Direct causes are most frequently of a moral kind, but predisposition has much influence even here, and it is preponderant in cases of simple melancholia.

The beginning of the disease is usually gradual, as is also the attainment of the height of the disease. A sudden outbreak and rapid attainment of great intensity commonly indicate that the disease is not uncomplicated; that it is probably of a periodic or circular nature. The course is slow with remissions and exacerbations, and if terminating favorably the return to health is gradual. A sudden termination in lucidity is a sign of bad omen—that the disease is periodic or circular.

The duration of melancholia is usually a few months, often a year or more, and it may continue several years and end in recovery.

The possible terminations are:

(1) Recovery, which takes place in 60 per cent or 70 per cent of all cases under favorable treatment. Simple mel-

ancholia almost always ends in recovery, but it is a recurrent disease.

(2) SECONDARY DEMENTIA is the result in cases that have not terminated in recovery or death: dementia may be slight (recovery with defect), or the secondary insanity may be a marked dementia, or a dementia with delusions more or less systematized—a secondary paranoia.

(3) DEATH from suicide, exhaustion, or secondary physical disease, especially tuberculosis.

THE DIAGNOSIS of melancholia, as already indicated, depends primarily on the existence of emotional depression, intellectual inhibition, and the proof that depression is primary and not a secondary result of delusions. *Self-accusation is almost pathognomonic of melancholia.*

The *differential diagnosis* must be made first with reference to psychoses due to organic causes (intoxication, gross cerebral disease).

Melancholia due to alcohol is of short duration, and usually the signs of alcoholism may be discovered.

Paretic dementia is differentiated from melancholia by the signs of the organic disease:—leucocytosis, etc., of the cerebro-spinal fluid; anomalies of the pupil; certain forms of tremor; pathologic alterations of the deep reflexes; dementia (amnesia).

Paranoia, if showing depression, may usually be distinguished by the fact that delusions are primary; that persecution and fears are expressed as unmerited in contrast with the self-accusation of the melancholiac.

The passive state of hallucinatory delirium is to be distinguished by the variations of the mental symptoms and the absence of connected states of self-consciousness.

Acute dementia presents certain difficulties, but usually the facial expression of the passive melancholiac suffices to show that his passivity is due to ideas, rather than to absence of mental activity.

Stuporous melancholia cannot be differentiated from dementia except by the history.

The differentiation of melancholia from periodic and circular insanity can only be made with certainty by the history and observation of the patient.

THE PROGNOSIS of melancholia is more or less favorable, as is shown by the percentage of recoveries.

TREATMENT. The first indication to meet in the treatment of melancholia and emotional depression, in general, is the prevention of suicide, possible in any state of depression, and highly possible in a frank melancholia. The fulfillment of this indication is best obtained by never leaving the patient alone, and having a perfect appreciation of the cunning and violence such patients employ to obtain the desired end.

The second question is whether it be best to treat the patient at home, in an ordinary hospital, or in an asylum. If money, room, and all the needed nurses of experience be available, there need be no doubt about choosing the home or a hospital, at least during the first few months; for thus the medical indications can be met without incurring or risking the odium that invariably attaches to a sojourn in any asylum, and without the prejudice to the patient's welfare occasioned by the necessary legal procedure for commitment. In the absence of such means or with prolongation of the condition, the asylum is indicated. It is assumed, also, that in home-treatment, there is a perfect understanding of psy-

chiatry on the part of the medical attendant and much patience on the part of the relatives.

The first direct medical indication is rest in bed with care to maintain body-heat. No persistent effort should be made to "wake up" the patient or to argue him out of his depression or delusions. He should be allowed to understand by a consistent manner, that he is considered a sick person.

Sleeplessness should be treated by warm baths and alcoholic stimulants, and ultimately by bromides, sulphonal, trional, and chloral hydrate; no drug should be used exclusively, except for the best of reasons. The milder the means that attain the end the better.

The loss of appetite and the constant loss of weight call for special attention to food and the sufficient ingestion of liquids. It is not well to allow a patient to persist in taking insufficient food and drink, but to proceed (after three or four days) to the forcible ingestion of milk and eggs, and to look to the state of digestion and evacuation. Persistence in fasting for a longer time may cause a fatal termination, always after fourteen days. It may be necessary to administer medicines by force, as they are often refused like food, and the two can be given at the same time. If evacuants do not act well, recourse must be had to enemas (glycerine). Nutrient enemas are only of temporary use.

Forced feeding is an operation long since simplified and easily carried out in spite of the greatest resistence without the slightest harm to the patient. The forcible use of a stomach-tube passed by the mouth should be condemned because of the brutality often necessary for its introduction with patients that resist by closure of the mouth. A small (No. 10) soft rubber catheter passed into the oesophagus

through the nares is infinitely easier and always efficacious as a means of passing liquid food to the stomach. The apparatus necessary is an ordinary bulb syringe, a syringe operated by air pressure (Hall Health Syringe), or a simple douche apparatus (avoid too rapid passage of the liquid by raising the reservoir only moderately high). The tube leading from the syringe is inserted into the catheter either before or after its introduction through the nares into the oesophagus.

There are certain precautions to be taken in the introduction of the catheter. To be sure that it has not entered the larynx, it is necessary to observe the breathing and induce the patient to speak if possible. There is often a certain degree of anesthesia of the larynx which allows the passage of the tube without causing cough. However, if the tube has passed into the larynx, the respiration is always embarrassed. Movements of vomiting, if they occur, should not be allowed to hinder the operation. Some patients are very skillful in bringing the tube forward into the mouth as it passes the pharynx; a little care overcomes this obstacle. In case of doubt of the position of the tube, it should be withdrawn, and reintroduced. Care should be taken to avoid losing the tube in the stomach. It is only necessary, in order to avoid this, to look to the security of the tube at its attachment to the syringe. If a patient resist feeding, a very practical way of overcoming this without harm to the patient, is to seat him in an armchair and pass a strong stick over his knees and under the arms of the chair; an assistant on each side holds an arm and at the same time the chair is inclined backward raising the patient's feet from the floor. The operator places himself behind and controls the head by placing the left hand

under the chin and pressing the head backwards against his chest; with the right hand the tube may then be readily introduced in spite of jerking of the head. A patient may be fed in bed without difficulty. The resistence of a patient usually disappears when he is convinced that it is useless and the intentions of the physician are harmless. It is necessary to watch a patient after feeding to prevent voluntary vomiting of the food ingested. A patient should be fed twice daily at least, and oftener if indicated.

The drug almost always indicated in melancholia is opium or some one of its derivatives. It may be given by the stomach or hypodermatically. The latter method is preferable for reasons of exactness and to avoid disturbance of digestion and possible accumulation of the drug. The best form is the aqueous extract of opium hypodermatically; morphine and codeine prove useful in some cases. There is no danger of forming a habit, if the patient be kept in ignorance. The dose cannot be defined. At first it should be very small and gradually increased with all precautions, until depression is favorably influenced. By the mouth it may be necessary to increase to fifteen grains per day of opium, or its equivalent. It should never be stopped suddenly, but withdrawn gradually, as in an opium-cure. If administered by the stomach, hydrochloric acid should also be given; if it cause vomiting, atropine may be added.

Opium is almost a specific in depression. Sometimes it acts like magic. It is useful in almost all forms of emotional depression. To do any good it must be used freely, though always with discretion.

The drug treatment in general of melancholia finds its indications in physical conditions which need no further explanation. In the first few weeks or months every effort

should be made to restore the physical condition by observing the requirements of rest, food, and meeting all general indications.

The psychic condition of the patient must never be left out of account. Tactful appreciation of the patient's depression and delusions should be shown in gentle remonstrance and argument. Argument though seemingly useless, and harmful if persistent or peremptory, should never be entirely abandoned; the patient should never be left inactive or without signs about him of interest in his welfare. A patient left plunged in melancholy, with all bodily needs cared for, but isolated by the indifference of those around him, is destined to pass into dementia. Thus, after the earlier signs of exhaustion have disappeared and there is some evidence of physical improvement, the patient should be removed from bed and gently encouraged to take interest in companionship and in exercise in the open air. Isolation is good only for acute conditions.

In general, physical improvement without signs of mental improvement is of bad omen; and sudden improvement, unless as a result of opium, without physical improvement, is also suspicious; the two should go hand in hand, though mental improvement may follow physical change for the better at a considerable interval.

In cases treated in an asylum, it is necessary to take into account the possible effect of homesickness, etc. In certain cases recovery is completed by placing the convalescent patient in his former surroundings. Much, therefore, depends upon the judgment of the physician.

In general it may be said that travel, change of scene, and efforts to distract the melancholic are decidedly misplaced in the early weeks of the disease.

LESSON XVI.

Emotional Exaltation.
(Mania.)

The principal characteristic of mania is emotional excitement expressed in abnormally increased physical and mental activity. Whenever this symptom occurs we say the patient is maniacal. It constitutes a simple form of insanity if it be pathologic and not a complication of some other form of mental disease.

Mania, as a simple functional psychosis, is very rare, but maniacal patients are very common.

Usually a definition of mania is made to include emotional gaiety or pleasure as a characteristic in contrast with the sadness of melancholia; this is an error in the sense that gaiety of sentiment, while frequent in maniacal states, is far from being constant; the emotional state is changeable, just as the thoughts are changeable.

The real contrast of melancholia and mania lies in the contrast of monotony of emotion and ideas in the one with the rapid variation of emotion and ideas in the other.

Any emotion may occur in mania—gaiety, sadness, anger—but no emotion lasts long; feeling runs through all its modes of expression with comparative rapidity, and thought and action keep pace with it.

Melancholia is a condition of mental monotony that

passes through a period of confinement to a single kind of thought and feeling to absolute arrest of mental activity. Mania is a condition of acceleration of the play of thought and feeling that passes through a period of excitement, with momentarily expressed thoughts and feelings, absolute incoherence of ideas and emotions, and finally even to arrest of mental activity (exhaustion).

It is difficult or impossible to determine whether the emotional state in a case of mania has acted to cause acceleration of ideas, or *vice-versa;* and the solution of the question has less practical importance than in the case of melancholia; however, it is true that emotional excitement of a pleasurable kind increases the play of ideas, and increased play of ideas may cause a pleasurable emotion.

The best artificial example of mania is afforded by the excitement observed at a certain stage of alcoholic intoxication: when the convivial person begins to feel the poison, he shows it in that he becomes abnormally wide-awake, seeing all and reacting to everything around him; he grows more talkative and his words are accompanied by more and more lively gestures; his opinions grow more and more positive; he becomes more and more argumentative; his compassion or anger arises at the mere idea of suffering or opposition; he is moved to tears or revengeful anger for the sake of others; an argument excites his ridicule and at last his anger, and perhaps he goes to the extent of physical violence or of blind impulsive murder at the provocation of argumentative opposition; finally he passes into a state of incoherence of ideas and feelings.

Mania, as a functional psychosis, presents several possible stages. Usually it is preceded by a period, more or less prolonged, of general malaise, mental dullness, loss of

appetite, and imperfect sleep. This may be called the initial stage of depression, which differs in no essential way from the beginning of melancholia. More or less suddenly the clinical picture changes. The ideas and feelings show a livelier play. The patient is gay; his ideas are innumerable; and his actions follow his feelings and thoughts without reflexion. He becomes witty and superior to his companions. He becomes more charitable, more compassionate, more irritable, more uncompromising, less open to argument, impatient of control or of obstacles of any kind; all is rosy or momentarily quite the opposite. Personal modesty disappears; grand ideas are expressed; action and thought become indicative of belief in the impossible, in the utility and perfection of all the patient thinks and does. The excitement leads to physical restlessness of all kinds, so that dissipation and wandering about without reference to social conventions, become the striking signs of the abnormality.

The physical accompaniments are bright eyes, increased circulation shown in a quick, frequent pulse, and flushed face.

In the beginning the appetites are increased, but later, if confusion occur, the changing ideas give no time for the satisfaction of them. The patient does not eat for lack of time, and neglects all conventionalities. The physical condition deteriorates rapidly in spite of seemingly sufficient food, owing to excessive physical activity and sleeplessness, and a state of physical exhaustion is threatened or attained.

Mania may present a stage of depression, a stage of exaltation, a stage of fury. The initial stage of depression can but rarely be immediately estimated at its value; the stage of exaltation is only a degree of excitement less than that of fury and separated from it only by conventional estimation of the degree of excitement. Incoherence of ideas

may be apparent long before a state of fury is reached. In the state of fury the patient is constantly in action, weeping, crying, shouting, dancing, striking, tearing, and paying no attention to the calls of nature. Grand ideas are the rule; sleeplessness is constant. Insufficient taking of food and drink may call for forced feeding as in melancholia. The lack of sense of fatigue and of perception of heat and cold is remarkable.

Mania gravis (acute delirious mania, Bell's mania) is the ultimate stage of aggravation of mania; it is often a complication in the sense that it is reached rapidly, accompanied by fever, muscular twitchings, and grinding of the teeth. It is regarded as due to an infection.

Mania as a symptom is always of very doubtful significance; it should always be regarded as possibly indicative of more than functional disturbance; for most frequently it is a symptom of degenerate or organic cerebral conditions.

Mild maniacal exaltation is practically always a sign of degeneracy, when it cannot be proved to be due to some exciting cause—intoxication.

Pronounced mania is usually a recurrent form of (degenerate) mental disease. Sudden mania with sudden subsidence is either recurrent or periodic, a phase of circular insanity, or allied to epilepsy, intoxication, etc.

Mania gravis (Bell's) is either aggravation of an ordinary mania (accidental infection) or due to primary infection. It is classed as an organic insanity.

The special symptoms of mania require some detailed consideration.

Hallucinations are rare symptoms in mania, except in its most active stage; illusions, on the contrary, are very common in the disease. Both illusions and hallucinations

are very changeable, in consonance with the fundamental state of mind. Errors of a visual kind are the most frequent, though errors of none of the senses are excluded.

A feeling of sickness (mental or physical) in mania is never expressed; the patient has a feeling of unexampled well-being, often in contrast with the physical condition or actual physical disease or injury present. This is in accord with the absence of sense of fatigue so characteristic of mania, and the frequent declaration of a feeling of more than perfect health.

Sexual feelings are usually increased, and often shamelessly expressed in onanism and sexual approach to the opposite sex, or in obscene language. With ethical feeling lost, offenses against modesty and sexual reserve (nakedness, sexual exhibition, open performance of acts of nature, etc.) are frequent. Seemingly innocent girls become erotic in language to a degree which proves that it is impossible to shield the young from knowledge of obscenity.

THE PROCESS OF THOUGHT is greatly facilitated, and there results a veritable spontaneous flight of ideas through facilitation of association of ideas and loss of depth and clearness of mental images; so that external similarities, especially of sound, lead to rhyming. Speech becomes so rapid that it may be unintelligible. In the midst of apparent incoherence, the patient may show a perfect memory in the repetition of poetry or in the expression of details of the past. Even in his flight of ideas it may be possible to excite his attention and obtain relevant answers to questions.

THE DELUSIONS of mania are seldom fixed, and they are usually expansive; compared with the grand delusions of paretic dementia, they are less exaggerated and less senseless and absurd.

The state of feeling may be in general gay, satisfied, but it is rarely constant and usually passes rapidly from one to another form. The emotional state is often easily influenced (altered), but any impression made is transitory. Imprecations and anger, joy, laughter, weeping and wailing, shouting and whispering, follow one another without order or stability.

The motor restlessness and sleeplessness are striking symptoms. The absence of sense of fatigue and the quickness and force of movements seem to indicate increase of muscular power (maniacs are popularly thought to have superhuman strength). But this is more apparent than real, and due to the explosive rather than sustained character of muscular action; and with the continuance of motor excitement, muscular weakness and exhaustion soon supervene. Experienced persons, as a rule, can easily control physically a true maniac, and only two good attendants are necessary, even in the wildest excitement. When an army of attendants is necessary to overcome a maniac, fear and inexperience are the cause, or the maniac is an epileptic of vigor or one in the very early stages of the malady. Any attempt to control a maniac is always with a view to avoid injury to him; hence the need sometimes of several attendants.

The body-weight falls rapidly. The pulse shows no special anomaly, and the temperature is normal unless there be a physical complication of some kind.

Etiology. Mania affects both sexes with about equal frequency. As a simple psychosis it is rare. It may occur at any age, but it is most frequent in the earlier years of adolescence. Direct and definite causes cannot always be de-

termined. It sometimes follows head injury. Usually the predisposition to insanity is marked.

The outbreak of simple mania is rarely sudden, usually gradual and through a period of malaise and depression.

The course is one with remissions and exacerbations, lasting from a few months to a year.

Transitory mania of a few hours' or days' duration is a sure sign of mental instability (degeneracy) comparable to simple emotional depression; or it is a transitory symptom in the course of organic disease of the brain (intoxication, etc.) and has the significance of delirium. A possible relation to epilepsy and hysteria should never be forgotten.

The terminations of mania are: (1) recovery (complete), rare except in periodic and recurrent cases during the earlier attacks; (2) recovery with defect, which is the best that can be expected after a prolonged severe attack, or after repeated attacks; (3) secondary dementia of a quiet kind and secondary dementia with continued maniacal symptoms (chronic mania); (4) death from exhaustion, intercurrent disease, or accident (physical injury).

Mania gravis (organic) is almost always fatal; recovery with defect is possible.

Diagnosis of the maniacal state is easy, based always on the presence of excitement—the increased flow of ideas, the changeable emotional condition, and the motor restlessness; but it is difficult to make an immediate diagnosis of simple mania.

In the first place, organic disease must be excluded by careful examination for its signs. The cerebro-spinal fluid should always be examined in case of doubt, for it may afford means of positive diagnosis of an oragnic disease which

other symptoms do not justify. With regard to the question of its degenerate significance only the history and course are of value as the basis for a conclusion.

Mania is to be distinguished from the common maniacal symptoms of paretic dementia by the signs of that disease—alterations of the reflexes, of pupillary reactions, of speech, and of the cerebro-spinal fluid; finally by the dementia that characterizes diffuse inflammatory affections of the cortex.

Intoxications (alcohol, lead, etc.) are to be diagnosticated by the history and by the special symptoms.

Epilepsy and hysteria as a basis are revealed by certain symptomatic peculiarities (see Epileptic and Hysteric Insanity) and the history and course.

Hallucinatory delirium is distinguished by the multitude of hallucinations, which as such are not characteristic of mania (see Hallucinatory Insanity).

From these considerations it is clear that immediate diagnosis of the significance of maniacal symptoms is often impossible; time for observation is almost always required.

The prognosis of mania is not favorable for absolutely complete recovery, except in mild acute cases; and it is still more uncertain with regard to recurrence.

Treatment. Mania should always be treated in an institution for the insane. On the part of the general practitioner certain indications require immediate attention, for transfer of a patient to a hospital is often possible only after a few days. The restlessness and sleeplessness call for hypnotics, when sufficient nurses have been provided to guard the patient from self-injury and injury to others and material things. Sulphonal, trional, and chloral hydrate are most useful; opiates are of little use. Hyocine hydrobromate overcomes motor restlessness, and it is convenient

for hypodermatic administration; however, its dangers should never be forgotten.

In the early stages of home-care mechanical restraint may be absolutely necessary, but this should be applied with discrimination and care to avoid injury. The patient should often be kept in bed, and for restraint the bed should always be chosen, where the patient's arms and legs can be confined by means of sheets, which may be so employed that injury of the patient is impossible. A patient restrained should never be left alone, and restraint should be avoided if possible, and never be allowed to replace personal care.

The transfer to an institution is not always easy; deception of the patient is perfectly justifiable to attain the end quietly; but the deception should, if practicable, be explained to the patient, with its reasons, by those that have practiced it, in order to shield the asylum authorities.

In an institution the treatment can be carried out systematically. Hypnotics used judiciously are of value; prolonged baths are often useful; care for food and drink in generous quantities is absolutely necessary. Isolation in the acute stage of excitement is always indicated. A patient should not be left alone in a padded cell, but humanely restrained in bed with constant watching. Details of management cannot be given, but patience and expectant symptomatic treatment are the general requirements. It is very harmful and dangerous to push chemical (drug) restraint; mild doses of hypnotics are alone justifiable. Time, not medicine, cures mania, if it is to be cured. Exercise (forced walking) in the active stages of mania, is contra-indicated as likely to help to exhaustion.

LESSON XVII.

Hallucinatory Insanity.
(Delirium.)

Hallucinatory insanity, or delirium, is characterized by hallucinations and defective consciousness of self and time and place (clouding of consciousness). It is a simple form of insanity if not a complication of some other insanity, functional or organic. It is distinguished from mania and melancholia by the fact that the emotional accompaniment is indistinct, changeable, or wanting; and by the mental confusion, which occurs in the course of mania and melancholia only as an episode.

Hallucinatory insanity presents two clinical pictures, an active and a passive.

Active hallucinatory insanity. After a few days of premonitory symptoms—headache, anxiety, restlessness, sleeplessness, which in themselves present nothing distinctive—the patient presents the distinguishing mental symptoms. His action, speech, and facial expression show that he is the subject of numerous hallucinations of changing character, affecting one or more of the senses. His emotional expressions are extremely varied owing to variation of the character of the hallucinations. This is so rapid that there is both ideational and emotional confusion (clouding of consciousness, loss of self-consciousness). In language

the patient is incoherent, either momentarily or constantly. Self-consciousness may reappear momentarily, but almost immediately is lost in the whirl of confused hallucinations. The patient at the height of the disease loses his individuality, recognizes neither friends nor surroundings, and knows not even to respond to the calls of nature. Thus joy, sorrow, fear, anger, etc., may occur momentarily and lead to corresponding acts. In all mental and motor manifestations, however, the characteristic note is variation without law or order. If there be delusions, they display the same changeable character and lack of all logical system—delusional confusion. Active hallucinatory insanity is often mistaken for mania, especially since it may simulate very closely the furious (delirious) stage of mania. Little by little, after a longer or shorter period of great excitement, the patient grows quieter and the hallucinations fade. With the subsidence of active symptoms there is a gradual reawakening of self-consciousness. Of the active period of the disease, memory is wanting or very imperfect.

PASSIVE HALLUCINATORY INSANITY resembles passive melancholia and acute dementia. The patient is inactive, inclined to remain in bed, or may wander about aimlessly. Silence is characteristic. The face expresses in movements of the features the existence of pleasant, disagreeable, or fearful ideas, and the attitude or regard may show through what senses the patient is hallucinated. The hallucinations are less variable than in the active form. There is evidence of the same confusion of mind in the absence of all sense of self and surroundings and the absense of reaction to external impressions. This condition may pass into one exactly like that of a stuporous melan-

cholia, from which it can be distinguished only by the history of precedent and primary hallucinations.

These two clinical pictures may alternate in a given case.

Special symptomatology. The predominance of hallucinations and illusions is the distinctive characteristic; all other mental symptoms are secondary to these. The changing delusions never show any system, except in the secondary chronic stage of dementia, when they may assume feeble logical association. The emotional state corresponds with the hallucinations, etc., and shows similar variations. Owing to the clouding of self-consciousness, after subsidence of the active symptoms memory of the subjective and objective experiences of the height of the disease is defective or absolutely wanting.

The physical symptoms. The pulse shows nothing abnormal. The temperature is normal in the absence of a complication. Fever points to a physical complication or grave delirium or exhaustion. The patient loses weight rapidly.

Refusal of food is common, for the patient is too restless to take food of which he has no conscious need; thus forced feeding is often required.

Etiology. The causes of hallucinatory insanity are those of insanity in general—hereditary predisposition and exciting accidental causes. It is a very frequent form of mental disease; many cases of short duration never reach an institution for the insane. It affects males more frequently than females, and occurs most frequently in middle life.

The direct or accidental causes are infections and mental shock following physical injuries, surgical operations, etc. It is by far the most frequent form of so-called puerperal

insanity, it follows typhoid fever especially, and occurs during the course of pneumonia as a complication.

THE OUTBREAK of the symptoms is usually more or less acute.

THE DURATION varies from a few days to a few months; cases of a year's duration have ended in recovery.

THE PROGNOSIS is relatively favorable for all cases taken as a whole. The more acute the symptoms and the longer they have continued the more unfavorable the prognosis. Recoveries under hospital treatment are estimated at forty per cent; the milder cases that recover at home raise this percentage decidedly.

TERMINATIONS. If recovery does not ensue, it may end in chronic dementia with persistence of faded hallucinations and delusions, which may develop into a certain feeble systematization of ideas; or in simple secondary mental enfeeblement (dementia).

Death may ensue from the direct cause of the psychosis (puerperal or other infection, trauma, etc.), or from accidental complications. The psychosis may lead directly to general physical exhaustion ending in death, a danger always present when excitement is great and continued.

THE DIAGNOSIS depends upon the demonstration of hallucinations and the clouding of self-consciousness as initial and predominating symptoms, and the proof that they are not accidental symptoms of organic disease of the nervous system.

THE DIFFERENTIAL DIAGNOSIS is not always easy in the beginning. From the delirium of fever, it is distinguished by the fever, especially if the delirium subside and augment with the rise and fall of the temperature; but a delirium that persists or suddenly begins after the *febrile crisis* of an infec-

tious disease should give rise to doubt of the assumed febrile nature of the mental disturbance.

As an intercurrent symptom in the course of other psychoses (melancholia, mania, hysteria, epilepsy, periodic insanity), only the history and observation make its distinction possible.

From mania it is distinguished by the multitude of hallucinations and disturbance of self-consciousness, which are never observed in mania. The maniacal patient's attention can be attracted and directed here and there; the hallucinated patient is entirely preoccupied with his hallucinations, and his attention can be attracted rarely if at all; besides, the very rapid play of the emotions is foreign to mania, notwithstanding the fact that the maniacal present varied emotions (laughing, weeping). The maniac shows at almost all times that he is perfectly aware of himself and his surroundings, and his excitement but rarely attains a degree of intensity in which there is loss of orientation.

The active form of hallucinatory insanity is very often called mania; but careful observation and weighing of symptoms will usually make the distinction possible; in a few cases where a differential diagnosis is impossible, the solution of the question must be left to observation in hospital.

From the passive form of melancholia it may be impossible to distinguish immediately the passive form of hallucinatory delirium. The points of differential diagnosis are the variation of symptoms in hallucination as compared with their stability in melancholia, and signs showing that the melancholiac is self-conscious.

From acute dementia passive hallucinatory insanity is distinguished by the facial expression, which shows reaction to hallucinations, but which is empty and expressionless in

acute dementia. In acute dementia the patient is listless and makes no spontaneous effort of consequence, and no resistence to others that attempt to move him or lead him about; the hallucinated patient is much less readily directed or moved in bed or elsewhere, for he frequently resists, or attempts to avoid the approach of others.

Mania gravis as an organic cerebral disease, is distinguishable by the initial and continued fever; the very stormy excitement; the rapid exhaustion; the tremor and muscular spasms and paralyses; and other signs of organic disease of the brain. It should be remembered that a grave delirium may terminate a case of initial hallucinatory insanity.

The furious excitement of paretic dementia is distinguished from simple hallucinatory insanity by the presence of signs of organic cerebral disease.

Epileptic hallucinatory delirium can only be distinguished by means of the history and observation. The same is true of hysteric delirium.

Treatment. In the presence of insanity beginning as delirium, especially if a probable cause in infection (fever, puerperal state) can be found, if possible the patient should be treated at home or in a general hospital, if means of isolation and intelligent nursing are at hand. A febrile patient should not be moved if it be possible to avoid it. Possible physical complications (pneumonia) should be carefully excluded. Since many cases are of short duration terminating in recovery, the transfer to an institution for the insane should be made only when other means of proper care are wanting, or the course and character of the symptoms indicate a more or less prolonged duration of the disease.

There are several indications—rest and quiet, and stim-

ulating, supporting treatment, with protection of the patient from self-injury and prevention of injury to others.

The patient should be kept in bed in an isolated, quiet room, in a subdued light, and cared for by a minimum number of nurses, all other persons being excluded. The nourishment should be fortifying and given in generous quantities—milk and eggs will often be most suitable and most easily administered if forced feeding be required; nutritive enemas may be indicated. Prepared and concentrated foods may be useful, but they should never be used exclusively or with the idea that in small amount they take the place of more bulky food. Stimulants—wine, ale, beer, etc.,—may be useful; brandy, camphor, etc., may be indicated in certain conditions of collapse or general weakness. Lukewarm packs and prolonged baths also have a calming effect.

The use of hypnotics should be very cautious, because to obtain their effect it is usually necessary to employ very large doses. Bromides may be tried; chloral hydrate, sulphonal, and trional may be alternated; hydrobromate of hyoscin and duboisin may be used hypodermatically, but always with care, and not for long periods.

The patient should never be left alone. Mechanical restraint may be necessary, but in all cases when it is required it should never be an excuse for neglect of constant personal attention.

LESSON XVIII.

Acute Dementia.
General Remarks on the Simple Insanities.

Acute dementia is characterized by a comparatively sudden and primary arrest of all the mental functions, which may be partial or complete. The patient resembles in his listless vacuity a passive idiot.

The primary origin of the dementia is its distinguishing diagnostic feature in contrast with dementia secondary to some functional or organic brain disease.

Acute dementia is very rare, and for this reason the diagnosis of it should be made with great care and always after a sufficient period of observation.

Clinically the picture is one of striking mental vacuity. If the patient can be induced to speak, which is rare, he shows his emptiness of mind, his lack of ideas, in his want of knowledge of his surroundings and feelings, and in his inability to recognize his own name. The facial expression is void; the features are relaxed; saliva runs from the mouth; urine and feces are passed without apparent knowledge or attention; no appetites are expressed, and the patient must be fed like an infant.

The marks that distinguish acute dementia from passive melancholia and passive hallucinatory insanity, are its primary origin; the passive indifference and lack of resistance

to others; the empty facial expression; and in contrast with melancholia the absence of memory for the period of acute illness after recovery. However, it is not always possible to make a differential diagnosis. There are cases of passive melancholia that are exact pictures of acute dementia, the only distinguishing features of which are outbursts of furious violence in the course of melancholia. If these do not occur a supposed case of acute dementia may finally prove to have been a delusional (passive) melancholia.

The temperature is subnormal, the pulse slow, respiration superficial, and all the physical functions are more or less reduced in activity.

Terminations. Recovery, if it occur, takes place gradually, with improvement in the physical functions. Recovery may be complete in mild cases and those of short duration; or incomplete with signs of permanent mental weakness. Death may result from exhaustion or arrest of general nutrition; or, as is the rule in fatal cases, from some physical complication, especially tuberculosis.

Etiology. The causes of acute dementia are mainly mental shock. It occurs in males of youthful age most frequently, and is a sign of defective nervous organization.

Course. The disease may last a few weeks or some months and finally end in recovery,—the usual result. An apparent acute dementia ending in recovery after several years, is a case of delusional melancholia.

The prognosis of acute dementia is on the whole favorable.

The diagnosis is difficult, for it simulates many other conditions.

Hallucinatory insanity (passive) is to be distinguished from it by the facial expression and other signs of mental

activity, especially the more or less marked resistance to efforts made to move or care for the patient, as compared with the indifference and absolute passiveness with vacuity of countenance observed in acute dementia.

Passive (stuporous) melancholia has a facial expression of sadness, sorrow, or fear, and the patient resists and is difficult to care for and feed because of opposition. There is tonicity or hypertonicity of the muscles; in acute dementia the muscles are relaxed.

Temporary mental vacuity occurs in the course of epilepsy. Such conditions are to be recognized only by the history and observation of their course.

Organic brain disease may cause dementia (aphasic conditions), but attentive examination will reveal the organic accompaniment and explain the nature of the case.

The treatment should comprise rest in bed, stimulating baths with massage to keep up the circulation, rich diet, care for cleanliness, and use of tonics—wine, iron, strychnine, quinine, etc. With the re-awakening of the mind, care should be exercised to avoid shock or strain.

The patient should be transferred after a few weeks to an institution for the insane, if circumstances have not made this necessary earlier.

GENERAL REMARKS CONCERNING THE SIMPLE FUNCTIONAL INSANITIES.

The four forms of simple insanity, melancholia, mania, hallucinatory delirium, and acute dementia, with their various clinical pictures, it will be noted, cover all possible variations from the normal mental state, except that of primary delusional insanity. But primary delusional insanity, while pre-eminently a functional psychosis, is practically always

degenerate, and therefore it finds its description in the lessons devoted to frankly degenerate forms of mental alienation. As simple independent forms of disease they exist, but it is always by exclusion that they are diagnosticated, and it is rarely possible to make a diagnosis of the form of insanity on superficial observation.

Simply to diagnosticate insanity may be easy, but study of the origin and course of the case is usually necessary before a positive classing of the case can be made. In certain cases, especially those presenting passive symptoms, only a probable diagnosis can be made. *Many cases of insanity can not be scientifically classified for the reason that our knowledge of mental diseases is imperfect; and therefore any statistical classification should allow for a certain proportion of unclassified cases.*

In the presence of a person presenting mental symptoms, the first point to establish is the genuineness of the symptoms. This may be very easy if the symptoms correspond with those empirically established; if they do not, then the physician should be on his guard against simulation, especially if there be any reason for simulation.

Dissimulation of insanity is not rare in paranoia; it occurs occasionally in melancholia, but is hardly possible in other forms of the simple insanities. The depressed patient dissimulates his depression, delusions, and impulses with a view to disarm his attendants and regain liberty of action—usually with suicidal intent. This should never be forgotten; thus the diagnosis of recovery becomes very important.

If a diagnosis of insanity has been made, the next point to establish is the presence or absence of signs of organic disease of the nervous system. In their absence we may

conclude that the insanity is a functional manifestation. If the clinical picture presented correspond with one of the four simple forms, the indications for treatment are evident. Later the course of the disease will usually permit its positive classification as simple or as an episode in the course of a degenerate form of insanity, if the history or special symptoms do not make this possible at once.

It should be emphasized that the simple functional insanities are in some degree signs of defect of nervous organization; and the occurrence of a mania or melancholia may be the first marked sign of the deficiency, which later shows itself in other ways—in other forms of mental instability. The attack may be repeated; one form may alternate with another; periodic or circular insanity may develop; other forms of chronic delusional mental disease may appear later, not as a consequence of the simple insanity, but as an additional sign of the fundamental cerebral defect.

Recovery, then, in cases of simple functional insanity, must be understood as meaning disappearance of all active symptoms and return to the previous state. The individual is no longer insane, but in the vast majority of cases of "recovery" there remain slight neuro-functional indications of the defective and weakened organization, which bespeak the liability to succeeding attacks.

Recovery with marked defect is very common; active symptoms disappear, but the patient never becomes himself; he is at a lower mental level—not insane, but less acute mentally, more emotional, wanting in self-control and initiative and persistency, and less equipped for work and life in general.

Certain cases of functional insanity occur but once in a lifetime. It is possible to predict in some cases that in

all probability the attack will not be repeated. Such cases are those in which heredity has played a small part or none at all, and the exciting cause has been intense in its effect (intoxications, infections). The less demonstrable a material exciting cause, the more significant of defect of cerebral organization is the attack of simple insanity. Furthermore, the absence of heredity and the influence of a material exciting cause, render the prognosis of complete recovery from an attack of simple insanity much less favorable. Simple insanities on an hereditary basis are very favorable for recovery from the attack, but subsequent immunity from attacks is rare.

Secondary dementia following the acute attack of insanity is very common. The dementia may be extreme; usually it is partial. The active acute symptoms subside and leave a state of mental weakness which renders the patient incapable of an independent existence; he must be cared for and directed in his daily life, though physically well. Such patients undergo a kind of re-education in asylums and thus lead lives useful in some degree, and to some extent they may enjoy life.

The acute symptoms of simple insanity (mania, melancholia) may persist years, with some reduction of intensity, and the cases merit then the term chronic. Chronic melancholia may end in recovery even after years of depression, but as a rule, dementia develops with the persistence of the depression.

In all cases of chronic insanity when physical symptoms have disappeared, the treatment is quite different from that indicated in acute cases. Life out of doors, occupation, amusement and distraction, are indicated. By these means

the excited may be calmed, the depressed awakened, and thus such patients may be improved.

In the course of insanity, the symptoms present many variations. Periods of calm or improvement may alternate for a time before a definite final condition is reached in recovery or dementia. Chronic dements are very unstable mentally, and their history is made up of records of states of calm and states of excitement or depression.

Chronic patients that live comfortably in asylums may seem able to return to society; but when tried they are found wanting and usually are readmitted with an aggravation of former symptoms.

LESSON XIX.

Degenerate Insanities.

The simple functional insanities are often signs of degeneracy, and always so if they occur repeatedly in the same person. A recurrent, periodic, alternating or circular insanity is a positive indication of defect of cerebral constitution, usually innate and associated with a history of nervous heredity.

Circular insanity means a cycle of insane symptoms. Cases thus designated present a period of melancholia, a period of mania, one of melancholia, one of mania, etc., alternately. Between these phases there may be a period of calm, but this period always presents certain signs of nervous and mental instability. This period of comparative lucidity may be prolonged and simulate recovery. The striking characteristic of circular insanity is the comparative suddenness of transition from one phase to another: the patient goes to bed depressed and wakes up maniacal, or *vice versa;* the transition may, however, take place slowly. Sudden transition from any insane state to lucidity suggests a circular or periodic insanity.

The symptoms of the phases of circular insanity are like those of the simple forms of functional insanity, presenting all degrees of intensity. However, in circular insanity the symptoms of the insane phases may be very mild and thus

escape observation for some time, until finally they become pronounced; and as a rule, the symptoms are less intense than in corresponding forms of simple insanity. The phases may be of different intensity and duration; the period of depression may be marked or slight; and this is true of the maniacal period. Some cases of so-called periodic insanity are circular in the sense that an outbreak of more or less pronounced mania is preceded by a short prodromal stage of depression. The physical symptoms of the phases are much the same as those that occur in simple mania and melancholia. In circular insanity the acute symptoms may be exactly alike in corresponding phases, but usually the repetition of symptoms is not identical.

Etiology. Circular insanity usually occurs before the age of thirty, and most frequently in the female sex. Hereditary predisposition is found in a large percentage of the cases. It is not a frequent form of mental disease.

Prognosis. It is practically an incurable form of insanity. A lucid interval may be indefinitely prolonged and pass for recovery. It results in secondary dementia only after years; some cases never show signs of dementia. If the lucid phase be wanting, dementia is more likely to supervene, with the final development of a prolonged or chronic maniacal state.

Diagnosis. It is necessary to distinguish circular insanity from organic brain disease presenting the semblance of a cycle of mental symptoms. The premonitory depression of mania should not lead to a diagnosis of circular insanity, nor should the periods of calm and mental exhaustion in the course of mania with subsequent recrudescence of symptoms lead to such a diagnosis. Certain periodic mental symptoms of epilepsy might lead to error if a his-

tory or observation of other signs of that neurosis were wanting. From simple melancholia and mania the distinction is to be made by observation and the history.

TREATMENT of the attack does not differ from that of simple forms of functional insanity. In the interval bromides may be given to advantage.

PRIMARY DELUSIONAL INSANITY is a degenerate mental disease.

PARANOIA is a term that is applied to the various forms of insanity characterized by primary distortion of the intellect, to which any accompanying emotional symptoms are secondary. In the simple insanities (melancholia and mania) the emotional disturbance is primary, and the intellectual disturbance is a consequence or simultaneous accompaniment of this; in paranoia, distortion of the intellect is primary, engendering emotional disturbance secondarily.

In the descriptions of the types of paranoia slight modifications of this principle will be seen, but the preponderating influence of the intellectual element will be always apparent.

There are a great many cases of psychic degeneracy revealed in certain intellectual symptoms which may never reach the degree of actual insanity, but as signs of degeneracy they are very significant and closely related to paranoia. For this reason they may be classed as RUDIMENTARY PARANOIA. The clinical picture is that of *imperative ideas*.

AN IMPERATIVE IDEA is one that assumes more or less complete control of the mind, thus disturbing or inhibiting the natural play of association of ideas, causing distress or annoyance to the individual, who is conscious of the anomaly and seeks to overcome or banish it, perhaps with some tem-

porary success; but the idea returns again and again, until finally it controls the thought and action of the patient. This anomaly may consist of one idea or several related ideas. It is the insistence of idea or ideas rather than the nature of the thought, that distinguishes the phenomenon. Psychologically we may say that an imperative idea arises as a result of limitation of association of ideas, but this does not explain the abnormality. It is best simply to examine the symptom objectively.

The symptom may occur only under certain circumstances, or exist constantly without any reference to external surroundings. Some patients are forced to think in numbers, to occupy themselves with mathematical problems: one counts his steps or the number of houses, or is constantly trying to multiply, divide, or extract the square root of numbers, etc. Other examples are afforded by persons that are constantly a prey to some peculiar idea. One is forced to think of or seek the cause of things, why the world exists, "of what use is it?" why do things grow? why do people do this or that? Another is forced to think of obscene things, to repeat in thought foul words or to imagine the nudity or appearance of parts of the body of others; another, in thinking of sacred things, immediately is forced to think of profanity and sin (by contrast); or the beautiful suggests the ugly and repugnant.

A common form of imperative idea is the so-called INSANITY OF DOUBT: the patient suddenly attempts to review his acts, and frightened, cannot assure himself that he did this or that correctly: "Did I put the right address on the letter? Did I put it in the letter-box? Was the cheque signed? Did I take the right medicine? Were my words and manner proper under the circumstances?" Some pa-

tients possessed by obscene or disgusting ideas, fear they have spoken them or written them, and thus brought shame and disgrace on themselves; the fear is that this was done unconsciously; they have no memory of having done it, but no positive memory of not having done it; for they cannot recall their acts in detail, and the fear paralyzes thought. Such patients put a constant watch on themselves, retire from society, and avoid writing materials. Some patients are constantly thinking "What if?"

Others have an impulse to avoid all possible sources of contamination by disease, and from fear resort to most minute care to avoid dirt and objects touched by others (MYSOPHOBIA), using the minutest care in washing themselves uselessly and repeatedly.

Some have fear of open places devoid of people (AGORAPHOBIA); others are oppressed in closed rooms and crowds (CLAUSTROPHOBIA), immediately imagining the accidents that might supervene under the circumstances, and are paralyzed in expectancy of disaster.

All such patients have a certain amount of self-control, except at times, with complete consciousness of the anomaly. This leads frequently to the fear of insanity, for which they often seek advice. This fear may become a conviction and lead to suicidal despair.

The imperative ideas may engender imperative acts of an impulsive kind—utterance of obscene or profane words, etc. Such impulsive acts are very rarely of a violent kind that endangers the life of others. If such acts occur, the patient is more than ever impelled to retire from contact with others, and is thus forced to abandon all his usual activities; he goes to bed and becomes impossibly slow in everything he does.

We observe analogies of the imperative idea normally, in acts done out of habit or superstition—such as always taking the same streets, the same side of the street, entering a building at the same door, etc.—usually with an ill-defined thought that to do otherwise might bring bad luck. The persistence of a tune or a certain phrase in thought suffices to illustrate the nature of the pathologic phenomenon.

THE ETIOLOGY of imperative ideas lies in a defective nervous constitution, usually shown by other neuropsychic symptoms, and very frequently engrafted on an hereditary taint.

It is also to be remarked that many subjects of imperative ideas are naturally painfully conscientious, and the malady may begin in this conscientiousness at a very early age. It is a disease of youth and early adult life. It may arise spontaneously, or as the result of some exciting cause—acute weakening physical illness or some mental or moral shock. It develops gradually, and for a long time may be known only to the patient, who through shame and fear conceals his thoughts; if it seem to have a sudden beginning, probably the initial symptoms have escaped observation and elude investigation.

THE PROGNOSIS is unfavorable. If bodily disease has contributed to cause the development of the symptoms, restoration to physical health may be followed by disappearance of the insistent ideas. Usually the symptoms are chronic, showing variation of intensity. A case may develop into typical paranoia. The only danger to life lies in the possibility of suicide.

THE DIAGNOSIS depends upon the peculiar idea or ideas, the effect on the conduct of the patient, the primary origin, and the co-existence of consciousness of the abnormal char-

acter of the symptoms. It is possible to confound some of these forms of rudimentary paranoia with melancholia, mania, etc., if these, as they may, present imperative ideas; however, attention to the history and the interrelation of symptoms will usually make the nature of the case clear. The same is true of imperative ideas of hysteric or epileptic origin. Delusions and hallucinations make no part of the insanity of imperative idea; when these exist we have to do with some other form of insanity, of which the imperative idea is a symptom or which has been developed out of the imperative idea.

TREATMENT of these cases of insanity of imperative idea falls usually to the general practitioner, for whom, if he have not great patience and tact, they become annoying, exasperating patients, insistently demanding care and advice, arguing interminably, constantly redemanding reassurance that rarely reassures more than a moment, an hour, or a day.

The medical treatment should be symptomatic and always have in view the establishment of robust physical health. Sometimes minute directions for carrying out medical treatment have a good temporary effect, if the patient is assured that the anomaly rests upon a physical basis for which the treatment is required.

Morally it is the duty of the physician to assure and reassure the patient that he is in no danger of becoming insane. In some cases change of scene, travel, exercise, amusement, etc., have a calming effect. Hydrotherapy, electricity, or other means of treatment that exercise a suggestive influence, may be tried. In some cases the patient should be encouraged to continue his occupation and renew his efforts to convince himself that his fears are unfounded. If excitement or great depression supervene, the patient must

be treated as for mania or melancholia, forestalling always some possible act of despair.

The physician should not grow impatient or tire, within reason, of demonstrating in conversation the false position of the patient. He should win the patient's confidence by a consistent course, and he can thus often bring comfort, even though it be beyond his power to give permanent relief.

AGORAPHOBIA, CLAUSTOPHOBIA, and fear of high places may have an exciting physical cause in disease of the ear—external, middle or internal. Babinski has demonstrated the relations of ear-disease to disturbances of normal galvanic vertigo, and shown that removal of a small quantity of cerebro-spinal fiuid by lumbar puncture may influence favorably or cure aural vertigo and tinnitus. In cases of agoraphobia, etc., the possible aural origin calls for examination of the state of galvanic vertigo, and the possibility of a favorable result from lumbar puncture would justify the operation in case an anomaly of galvanic vertigo is found.

LESSON XX.

Paranoia.

Paranoia is a form of insanity characterized by delusions of primary and spontaneous origin, which become logically systematized and exercise a predominating influence on the thought, feeling, and action of the individual. It is chronic in its course, though presenting exacerbations and remissions, and accompaniments of secondary emotional anomalies as reactions to the delusions, which produce at times the features of acute insanity.

Paranoia is essentially a degenerate insanity, though in some cases it begins late and the outbreak follows some exciting cause.

An hereditary predisposition is almost always demonstrable, but this is not absolutely essential. Following acute insanity, a secondary systematized delusional insanity may develop resembling in many immediate mental symptoms a primary paranoia. If the immediate symptoms are those of paranoia, and they have arisen secondarily, it is the history and the course that distinguish it from the primary form of the disease. For this reason it is vain to deny that paranoia may arise in an individual presenting no other sign of original psycho-physical degeneracy than the insane symptoms. It is only logical to recognize that injurious influences affecting an organism originally normal, may pro-

duce symptoms exactly like those arising as a result of a congenitally defective neuro-cerebral constitution. In other words, paranoia may develop in any originally well-constituted individual as a result of causes that have altered the neuro-cerebral state to a profound degree. Thus alcoholism may produce a paranoia indistinguishable from that of original degeneracy. Since neuro-psychic degeneracy of descendants may be the result of alcoholism in ancestry (parents), it is logical to assume that degeneracy, if inherited, must first have been acquired (accidentally) by progenitors.

Paranoia is essentially a functional mental disease, without known organic basis.

The important fact objectively in relation to paranoia, original, late, acquired, or secondary, is that it is an incurable disease. Recovery has never yet been reported by a competent observer.

Paranoia—rudimentary, in course of development, and complete—is a very common form of mental disease. It makes up a large percentage of inmates of asylums, and is extremely common in society. As a rule the persons known as "cranks" are candidates for paranoia or actual paranoiacs.

ORIGINAL PARANOIA is a designation for those cases of primary delusional insanity in which the symptoms can be traced back to years of childhood, to the beginning of mental development. The psychosis here appears as the result of development of a character abnormal *ab ovo*. Usually heredity is very marked—the family is degenerate.

The early symptoms consist of peculiarities of character: the child is quiet, retiring, dreamy, imaginative, different from other children; less amenable to the influence of others; less affectionate and more exacting; perhaps ill-humored, quarrelsome, cruel, or violent, and always ex-

tremely selfish and suspicious. History of convulsions, night-terrors, early hallucinations, persistent onanism, and other nervous symptoms, is frequent. The physical condition often shows defects of development and numerous signs of degeneracy.

The striking symptoms of insanity appear at the period of puberty. Even before this, such candidates may have shown weakness or one-sided development of mind and have been impossible in school because of their suspicions and their ideas of persecution.

The delusions develop gradually; usually they are ideas of persecution, accompanied later by melancholic, maniacal, hypochondriac, or stuporous symptoms, these secondary emotional states being very changeable. Sometimes the primary delusions are those of grandeur and personal importance. Owing to the early origin of the psychosis and the frequency of intercurrent states of emotional disturbance cases of original paranoia pass quite rapidly to more or less marked dementia.

Doubtless many cases of the insanity of puberty, ordinarily regarded as acute functional insanities, are cases of paranoia that are temporarily concealed by some form of episodical emotional disturbance.

Grand delusions are the immediate precursors of dementia. Original delusions of persecution that do not change to delusions of grandeur, permit a prognosis of continuance at a certain level of intelligence for several years, perhaps many. However, dementia usually shows itself early in cases of original paranoia.

Late paranoia. This variety of paranoia makes its appearance after puberty, often as late as the fifth decade of life. It begins in delusions of persecution. As in origi-

nal paranoia, there is often a history of hereditary predisposition, and almost always a history of peculiarities of character; of eccentric habits of action and thought, or an exaggerated belief in the efficacy or utility and possibility of certain social reforms, which engender conviction and unlimited faith in ideas and means which logic vainly shows to be of relative rather than of absolute value. Candidates for paranoia and paranoiacs in history have been founders of religious sects, initiators of reform movements (temperance, social systems, anarchy). The paranoiac's ideal is for him reality; opposition to his scheme is the signal for the use of force that in his opinion must prevail.

The specious resemblance of insane religious and reformatory delusions and prevalent religious and moral ideas, accounts for the fact that many religious and reformatory paranoiacs are tolerated in society, notwithstanding the disturbance they cause. It is remarkable that many forms of religion owe some of their principles, some of their rites, to insanity of a delusional type. The creation of new religious sects under our own eyes is most illuminating for an understanding of the prehistoric origin of religions consecrated in human faith by the immeasurable lapse of time.

The pathologic mental symptoms gradually grow more distinct and at last are emphasized by striking changes of conduct. The patient becomes unusually preoccupied with self, abandons his ordinary social habits, and is retiring and uncommunicative. His acts become peculiar; he does and says things that seem to have no rational motive; he is unusually obstinate and irritable. At this period he may continue to follow his occupation. There are no extraordinary physical symptoms though the patient may be sleepless and devoid of appetite.

An attitude of suspicion is usually remarked. Sooner or later, with or without external cause, the patient reveals his state of mind in some strikingly insane act or in the expression of insane delusions.

The initial delusions of persecution sooner or later may lead to the development of grand delusions, and the two may continue to exist side by side indefinitely; or the original delusions of persecution may disappear almost completely with the appearance of grand delusions, in which the patient continues to live with demented satisfaction.

It is sometimes possible to trace psychologically the logic of the *transformation*—the origin of the grand delusions in those of persecution. The paranoiac reasons often as follows: "I know I am persecuted, and I remember that all my life there have been events, slights, little annoyances, which at the time I could not explain and which I passed over, but which are now as clear as day: they were timid, initial efforts of my persecutors, who have grown courageous in the belief that they can persecute me with impunity to themselves, and accomplish my destruction. I have never done anything to merit this persecution. Why then have I enemies who, unseen, make my life unbearable? There must be a reason; I must be an obstacle in the way of my enemies. They would not risk their lives to kill me unless there were some great advantage for them in my disappearance from society and the earth." Thus searching a reason, he finally convinces himself that he is of great importance for the world, and that his life means much for society, but that he is a menace to a few (his persecutors).

The final grand delusions developed on this soil depend for their content on the education, social standing, and the society in which the patient lives. One is persecuted by com-

petitors, because he has discovered some great invention that will revolutionize society; another, because he is destined to save the world, is persecuted by the wicked, by Satan, by all the powers of evil, by Free Masons and other secret societies. Another is the object of machinations because he is the heir to a great fortune or a throne which others possess and fear to lose; another, because he has been secretly appointed to some high office by the ruler of his country or by the Pope. Another, because he is secretly loved by a prominent heiress or princess, is persecuted by aspirants to her hand; another is persecuted because his enemies desire to alienate his wife's affections (jealousy).

The transformation cannot always be traced thus. It sometimes takes place suddenly, as if it were the result of a dream or an hallucination which immediately and spontaneously reveals to the patient his personal importance. Legends, novels, and dreams often afford the material for the development of the secondary grand delusion.

Hallucinations of one or more of the senses are very common symptoms in the course of paranoia, and they may be the basis of the delusions or the influence that gives a particular coloring to the clinical picture. In some cases the persecution consists of hallucinations of bodily sensations attributed to magnetism, electricity, poisons, gases, telegraphy, etc. Hallucinations of hearing reveal the voices, the designs of the enemies; or the patient's thoughts are stolen from him, for he hears them immediately repeated; or there is a concealed telephone that reacts to his ideas and feelings and reveals in language his thoughts to others, etc.

Illusions of hearing are also common (the clock talks). Illusions of sight are more common than visual hallucinations: the patient sees himself watched by others; those

around him are his enemies in disguise; he recognizes former slight acquaintances in strangers; he sees by the manner of his friends that they are innocently made to do the bidding of his enemies, or that they are influenced and persecuted by his enemies because they are his friends. Hallucinations may become so numerous and intense that the case presents the picture of hallucinatory delirium.

The attitude of the paranoiac toward society is of the greatest importance—the effect of the delusions and hallucinations on the conduct of the patient.

For a time the persecuted paranoiac may accept his persecution with a certain resignation manifest in a state of depression; he may be silent, suspicious, uncommunicative, or even in despair; or he seeks to avoid society and surrounds himself with real or imaginary means (charms, etc.) to protect himself from his enemies. Perhaps he appeals for help to his friends or the authorities, who in their powerlessness to bring comfort may soon be confounded with his unseen enemies.

Almost inevitably, however, the continuance of persecution causes sooner or later the assumption of an attitude of aggressive self-defense or retaliation, and the patient is then extremely dangerous to others—to friends and strangers alike; for it may be accident alone that determines the person or persons that come to be regarded as hostile to him; and with his life threatened, he feels justified in resorting to murder, which is sometimes carried out with fury and horrifying cruelty, but more frequently with great cunning and careful premeditation and coolness.

The irritability of the persecuted may cause outbursts of great violence toward persons having no direct relation to

their insane ideas. A sudden hallucination or illusion may cause an attack on a perfect stranger.

With grand delusions the danger of violence diminishes, but it is still possible if persecutory delusions co-exist, or reappear and take the upper hand, as they may episodically. When grand delusions take absolute control and bring demented satisfaction to the patient, if the persecution is remembered, it is made light of, and enemies that can do no harm to so powerful a person are magnanimously pitied and forgiven.

The delusions may be very limited in number and comparatively fixed; hence the old misnomer, monomania—insanity on one subject. Usually there is variation and growth of delusional ideas through spontaneous intellectual activity, which takes place logically but is based upon false premises (delusions). Thus in paranoia there is always a systematization of ideas which transforms the character of the patient and makes him another individual. The paranoiac lives in himself and for himself, no matter how philanthropic he may seem; he is an example of absolute egotism, in which all former sympathies, inclinations, and affections are modified and ultimately lost.

The intellectual powers—intelligence, memory, acquired knowledge, reasoning powers—may remain intact for years, perhaps until death, always subordinated, however, to the uses of the "evolved system of delusions."

Dementia of a certain degree supervenes in the course of time; it is common and marked in original paranoia and it may be developed by an outburst of acute insanity in the course of paranoia; it is slight or unnoticeable in late paranoia, especially in certain varieties of it later described.

The *dissimulation of delusions* by paranoiacs is very

common because of their intact powers of observation and reasoning. This is most prone to occur at the period when the persecuted individual has changed to a persecutor. He has been called insane, confined perhaps in an asylum; he has recognized the fact that his delusions and conduct are the cause of his restraint, and he has enough self-control to dissimulate his delusions and conform in his expression of ideas and in his conduct to what, by observation, he has learned his physicians regard as normal; and if he can persist long enough he believes he can gain his liberty and be free to act in harmony with his delusions. Usually the motive of dissimulation is vengeance. Dissimulation, of short duration, of more immediate designs of vengeance against those around the patient is common, and one of the most frequent causes of homicide in asylums. Thus paranoiacs, in general, are to be classed among the most dangerous insane patients.

The danger of suicide in paranoia is not great, though a paranoiac may kill himself in despair at persecution or in a temporary state of depression.

It is evident that the *diagnosis* of paranoia may be difficult, and require lengthy observation; that any paranoiac may be very dangerous in society during the predominance of persecutory delusions; that the discharge of a paranoiac from restraint in a period of apparent remission entails a very grave responsibility; that his care in an asylum should be most painstaking in order to prevent injury to others.

LESSON XXI.

Paranoia.
(*Continued.*)

Clinically several varieties of paranoia within the two groups are observed, distinguished by the presence of certain predominating mental symptoms.

1. Hypochondriac paranoia is so-called from the predominance of hypochondriac delusions and hallucinations concerning the body and the various organs, which are attributed to the malevolence of enemies that use secret, invisible means to induce the unpleasant symptoms: poison, electricity, magnetism, dust, gases, etc.

2. Neurasthenic paranoia, a variety of hypochondriac, is dependent upon neurasthenic symptoms—fatigue, headache, disorder of digestion, etc., which are interpreted as due to the influence of enemies.

3. Hysteric paranoia is the paranoiac state of mind engrafted on the hysteric neurosis. The delusions are usually religious or erotic, and the cases may be thus placed in one or another of the following groups.

4. Hallucinatory paranoia is characterized by the number and predominance of hallucinations in the clinical picture. Hypochondriac paranoia is thus a variety of this form.

5. In erotic paranoia the delusions concern sexuality,

sexual relations, sexual things; often the delusions are obscene or disgusting in character or relation; sometimes they are idealizations of love and repugnant only by their silliness. Delusions of jealousy, of infidelity, etc., are frequent. Erotic paranoia often leads to importunity of some prominent person by the amorous patient.

6. In RELIGIOUS PARANOIA the delusions are religious or have some relation to religion, and are very frequently tinged with eroticism. One patient finds a mission in the Bible; another has had a miraculous conception and is about to give birth to a second Savior of the world; another sees in persecution the work of the devil, witches, etc. (demonomania).

7. REFORMATORY PARANOIA. Insane reformers of all classes are represented in this variety—temperance advocates, religious reformers and founders of sects, anarchists, and assassins of kings, rulers, presidents and other prominent persons.

8. QUERULOUS PARANOIA (quarrelsome paranoia). These insane persecutors become such as a result of their original suspicious nature; they see their rights infringed on all sides, especially by their neighbors, and they resort to the law for redress for the most futile, insignificant causes, or as the result of some lost lawsuit. When this condition is fully developed, the patient is constantly engaged in quarrels and lawsuits, and he may pursue this comminatory course for years without having his true condition recognized. The loss of his suit only stimulates him to begin new suits; to bring actions against the authorities, or to malign and persecute them in letters to the press, in spoken insults, or even by personal violence. The true condition once recognized and the patient declared insane, in an asylum

he becomes a most disturbing element and often succeeds in obtaining his liberty and bringing unsuccessful suit for damage against the authorities. They are frequently their own lawyers and show a surprising acquaintance with legal technicalities and procedure.

In asylums such patients interest visitors in their welfare and thus often bring about the intervention of the authorities for their release. The clear intelligence, logic, and acuteness of these patients in defending their position and describing the wrongs to which they have been subjected, deceive the unskilled observer and even physicians; and they often place alienists in an embarrassing position. These patients rarely exhibit hallucinations, and dementia not at all or at a very late period, and their delusions are so far within the range of possibility that they long go unrecognized as pathologic. Success in obtaining release from confinement causes renewed excesses in combativeness and acts of violence, which usually cause their return to the asylum, where several repetitions of the experience prove sufficient to prevent their release.

Special symptoms of paranoia. Hallucinations of hearing are the most frequent. Occasionally auditory hallucinations are unilateral. The phenomenon of hearing one's own thoughts has already been mentioned. The "voices" are often located in one or another part of the body and may lead to doubling of the personality—the patient believes his body is occupied by one or more persons that think and speak to him or through him. Hallucinations of taste and smell are frequent, and often associated with erotic ideas and delusions of poison. The hallucinations of general sensibility are characteristic of hypohcondriac paranoia. They may be so intense as to render the patient stupid and catatonic:

he thinks he is deprived of arms and legs; that his bowels have "rotted out"; that he has turned to glass, etc.

The speech and writing of the paranoiac often show striking peculiarities. Certain words are created that have a significance only for him; in his writing he employs certain signs and symbols that have for him some mystic or delusional meaning.

The conduct of the paranoiac may be entirely guided by his delusions or hallucinations; or it may present nothing strikingly abnormal, and the true state of mind be revealed in writings or when conversation is directed to some special subject, or when for some reason the patient is made indignant or angry.

Obstinate refusal of food sometimes occurs, usually due to fear of poison, and it may make forced feeding necessary, as in simple insanity.

Physical symptoms make no part of paranoia, aside from those that occur in association with acute intercurrent mental symptoms (excitement, depression, delirium).

The course of the disease has already been sketched. It should be added that the course is sometimes interrupted by a remission, but always sooner or later the delusions reappear, and they are the same or an evolution of those entertained before the remission. To the symptoms of paranoia acute symptoms of insanity may be added and temporarily dominate the clinical picture. It is possible for a paranoiac to have and recover from an attack of acute insanity (melancholia, delirium).

The diagnosis of paranoia is sometimes very readily made; often it is a very delicate matter, requiring long experience in observation of the insane as well as prolonged observation of the given case under favorable circumstances.

The diagnosis rests on the presence of delusions that are primary and logically systematized, which can be shown to be the essential element of the case around which all other mental symptoms are grouped.

It must be differentiated from melancholia. The delusions of persecution in melancholia are a secondary result of the emotional depression, and they disappear with the disappearance of depression. The depression of paranoia is due to the delusions and continues with them, to disappear only when there has been some alteration of the delusions; some evolution of them in the sense of the transformation; or some hallucinatory revelation that excites an alteration of the emotional state. An essential mark of distinction between paranoia (depressive) and melancholia, is the personal attitude of the patient toward delusional persecution: the paranoiac cannot understand his persecution, or regards it as unmerited suffering for which he is nowise morally responsible; the melancholiac knows only too well the cause of his persecution—it is the full expression of divine justice meted out to him, a sinner, etc. This difference serves also to distinguish hypochondriac melancholia from hyponchondriac paranoia.

The episodic excitement of paranoia is to be differentiated from mania by observation of the delusions, which are temporary and unsystematized in mania.

Hallucinatory delirium can be distinguished from episodic delirium in the course of paranoia only by the history and observation of the course of the case.

From organic insanity, the differentiation is to be made by the absence of all signs and symptoms of intoxication and organic diseases of the nervous system. It should be remembered, however, that a paranoiac may develop organic cere-

bral disease; that chronic alcoholism is capable of exciting paranoia. Commonly, however, the insane state due to chronic alcoholism presents certain distinctive features that are characteristic.

TREATMENT. From the foregoing description it is plain that the treatment of paranoia must be essentially symptomatic, and consist in the main of intelligent management of the patient. Some paranoiacs never require commitment to an asylum; they go through life mildly persecuted, only attracting attention by their peculiarities. Others, in the state of intense persecution, seek protection of the authorities, and once in an asylum may find comfort in the sense of protection felt there. Such patients once discharged sometimes return to the asylum voluntarily and there remain by choice. But the paranoiac that changes to a persecutor or avenger absolutely requires confinement in an asylum. Hallucinatory paranoia and all acute episodes of the disease demand the care of an institution for the insane. The discipline and means for regulating employment of an asylum often have a happy effect in modifying the conduct of such patients, and thus they come to be in a way useful and at the same time they have comparative comfort. In contrast with "comfortable" cases, there are others that remain dangerous, intractable, and impossible, requiring the most careful watching at all times.

The discharge from an asylum of a patient that has presented frank symptoms of paranoia entails a grave responsibility, and it should never be approved unless it has been absolutely demonstrated that the patient is in a true remission or in a mental state devoid of danger to himself and others. The physicians that may be called upon by friends or by the courts to aid in the decision of this question, should realize

the gravity of their responsibility and refuse to act, unless they have had experience in the care and observation of the insane. Medical observers in an asylum have the best means of knowing a patient confined there, and unless a want of good faith can be clearly demonstrated, others should be guided by their views. There is not a superintendent of a public institution for the insane who will not gladly submit any case to the judgment of others; if the law assumes the responsibility of discharge, the physician has fulfilled his function if he has expressed his opinion of the case.

Moral insanity deserves mention here for the reason that, like original paranoia, it is a manifestation of an originally defective cerebral organization, and may exist in association with powers of intelligence practically intact. The defective mentality, in contrast with paranoia, shows itself in deficiency or absence of moral ideas and feelings as a guide for conduct. Often such defective persons show signs of general mental weakness (imbecility); but in some cases deserving the name of moral insanity, this is very slight or unnoticeable, while the moral defect is profound. The peculiarity may be traced to the early years of mental development, and frequently there is a marked hereditary taint, cerebral or nervous, or a history of alcoholism in the parents. Signs of physical degeneracy are very common. The moral imbecile, as a child, is wanting in parental affection, willful, disobedient, and intractable, cruel to sisters and brothers, and to all animals. If he can be kept in school, he makes himself conspicuous by his disobedience, his malicious conduct toward his associates, and his want of all sense of shame at disgrace or punishment. He destroys the property of his fellow pupils for the pleasure of teasing and annoying them, and to enjoy their sorrow; he bullies the feeble

and respects the strong from fear. He is incapable of a feeling of sympathy, and lies and steals merely for pleasure or for the delight felt in harming others.

With puberty, masturbation and other sexual excesses begin. He deserts his home (sometimes a refined one) to consort with vagabonds and criminals. He begins by stealing at home, forging cheques, etc., to the detriment of his parents, appealing for forgiveness, perhaps with a view to gain another opportunity to satisfy his instincts. If such a person restrain himself temporarily from crime, it is only from the motive of expediency. Sooner or later such imbeciles fall into the hands of the law, and undergo punishment; sometimes their true condition is recognized and they find a place in an asylum.

LESSON XXII.

Epileptic Insanity.

The epileptic is prone to become insane. Only a small proportion of chronic epileptics go through life without manifesting some form of mental disturbance, and a large proportion become chronic dements.

The insanity of epilepsy is very important because it is frequently of only short duration and often leads to acts of personal violence of the most horrible kind. Insane epileptics belong to the most dangerous class of the insane. Their acts of violence often raise the question of legal responsibility, because of the seeming premeditation and perfect consciousness with which such acts are at times committed.

The classic attack of epilepsy is attended by disturbance or loss of consciousness, and in certain cases the attack consists only of momentary loss or disturbance of consciousness. This interruption of consciousness may precede, follow, or take the place of a classic convulsion, and be so prolonged as to constitute a mental state—a psychosis. This phenomenon is therefore named in relation to the epileptic attack, *pre-epileptic,* or *post-epileptic,* insanity, as the case may be; when it takes the place of an attack, it is called the *epileptic mental equivalent.*

Pre-epileptic insanity presents itself as a state of clouded consciousness with loss of self-consciousness or in-

terruption of the continuity of self-consciousness, in which the patient may perform the most complicated acts and present the outward appearance of consciousness. With the restoration of normal consciousness, memory of the events of the period is wholly wanting or very imperfect. This state may be marked by hallucinations and delusions, and the patient may be depressed or exalted. Often the patient presents a dream-like state; and sometimes with hallucinations and delusions there are ideas arising from former experiences which lead to acts of a violent kind. Thus, an epileptic may have had cause to feel resentment toward some one, and in a state of clouded consciousness this feeling takes control and leads to an act of vengeance, carried out with seeming cunning and revolting cruelty; but with the return of normal consciousness there is complete amnesia of the act.

Pre-epileptic insanity frequently ends with a classic attack of epilepsy or a series of attacks. It may be supposed that the attack effaces the memory of the events of the period of altered consciousness, just as the hysteric attack is in some cases the dividing line between the two separate states of consciousness (double personality).

Post-epileptic insanity, which follows a fit or a series of them, does not differ in any important particular from pre-epileptic insanity, but it is a more frequent phenomenon. It usually takes the form of hallucinatory delirium, in which visual hallucinations of fire are remarkably frequent; but hallucinations may occur in all the senses. Mania, melancholia, and delusional clinical pictures occur, and a state of cerebral exhaustion may simulate acute dementia. The duration varies from hours or days to months, and the attacks are frequently repeated at longer or shorter intervals, presenting frequently great uniformity of mental symptoms.

THE MENTAL EQUIVALENT of the epileptic attack does not differ from pre- and post-epileptic mental disturbance except in that it arises and disappears without any relation to convulsions; the patient remains free from attacks during the continuance of the psychosis.

A peculiar mental equivalent is exemplified by cases of *epileptic "fugue."* In the altered state of self-consciousness the patient wanders from home, and on coming to himself is entirely lost, and some time and trouble are necessary to establish his identity and regain his home. Such fugues may very rarely have several months' duration.

Some of the symptoms of epileptic insanity present peculiar features that are of aid in making a diagnosis. The *hallucinations* are usually of a frightful, horrible nature, leading to great intensity of reaction in fear and self-defense. In contrast with these, and connected with an abnormal intensification of religiosity, so common in epileptics, the hallucinations may concern divine things—God, angels, saints, the devil, etc. The *delusions* are varied, but religious delusions are common, often mingled with erotic ideas. The *acts* of insane epileptics, owing to their automatic (reflex) nature, are remarkable for their suddenness and violence; and such patients are extremely dangerous because their acts are usually directed with a view to do harm and are carried out with blind fury. The *disturbance of self-consciousness* is always profound; often there is complete or temporary loss of consciousness, entailing complete or partial amnesia. Formerly it was taught that complete amnesia was the characteristic mark of epileptic unconsciousness, but this is an error; imperfect memory for the events of the period of the continuance of the psychosis, does not exclude epilepsy as a cause. The epileptic psychoses

are remarkable for their sudden origin and their sudden disappearance.

Chronic epileptic insanity is a state of dementia arising in cases of long continued epilepsy, or in some cases rapidly as a result of frequent convulsions at a comparatively early age, or again as a consequence of repeated attacks of acute epileptic insanity. Epileptic dementia may reach a profound degree, the patient being as helpless as an idiot. Usually the dementia is milder and shown in slowness and dullness of intellect, weak memory, great irritability and quarrelsomeness often expressed in violence, with a certain selfishness of thought and action that makes the sufferer overconceited and sensitive. The majority of epileptic dements, in their moments of calmness, are remarkable for their piety and gentleness, which a real or imagined slight may instantly change to the most furious rage with murderous assault.

As episodic and intercurrent clinical pictures, almost any of the acute insanities may appear at any time in the long and hopeless course of epileptic dementia.

Etiology. We do not know why epilepsy causes insanity, though we may justly conclude that the nervous instability (cortical) that presumably lies at the basis of epilepsy operates similarly to unsettle all cortical functions. Excesses of all kinds, especially in alcohol, are very efficient exciting or aggravating causes.

Course. The acute epileptic insanities frequently end in recovery, but there is almost a certainty of recurrence and ultimate development of epileptic dementia. The single attacks may be short or prolonged. Epileptic dementia is incurable, and renders the prognosis of the epilepsy itself hopeless.

Epilepsy has no definite pathology, and the same is true of epileptic insanity, though in chronic epileptic dementia certain organic cerebral changes are always found which may as well be the result as the cause: dural adhesions, milky arachnoid, cerebral atrophy, minute cortical changes, alterations of the diploe, etc.

THE DIAGNOSIS of epileptic insanity is to be made on the basis of the diagnosis of the fundamental neurosis. The history of convulsions and epileptoid disturbances with manifestation of mental symptoms peculiar to epileptic insane states, makes the epileptic nature of the mental trouble probable. The probable diagnosis is still further strengthened if there be scars on the tongue and about the face, said to result from falling in fits.. Observation of a convulsion is the actual demonstration of the nature of the disease.

In the absence of a history, a probable diagnosis may be made from scars, and especially from the nature of the mental symptoms.

Insanity with epilepsy may be confounded with hysteric convulsions with mental symptoms. The points of differential diagnosis are found in the details of the history or in observation of the convulsions. (See Hysteric Insanity.)

Acute alcoholic insanity presents some close analogies with the acute mental symptoms of epileptic insanity. (See Alcoholic Insanity.) In the absence of a history of epilepsy and given a history of alcoholism with its physical signs, there can be little doubt; but with no history of the case, and with immediate signs of alcoholism there is reason for reserve, for epileptics are often alcoholic; again, a few chronic alcoholics become temporarily epileptic (alcoholic epilepsy), and in such a case even the fit observed is not absolutely in-

dicative of chronic epilepsy. Observation of the patient in the doubtful case is the only means of making the diagnosis certain.

Careful clinical examination, even if a history be wanting, should remove any doubt that might arise in a case of mental disturbance and convulsions due to uremic poisoning, remembering that albumen may be present in the urine of epileptics at times, and that thorough examination of the microscopic and chemical elements of the urine would be necessary in a doubtful case.

Epileptic insanity may be confounded with organic disease of the brain with convulsive symptoms, especially if the previous history be defective or wanting; but a general neurologic examination will usually settle the question beyond doubt. The symptoms that may possibly occur in epilepsy and suggest organic disease of the nervous system must be remembered. After a convulsion the deep reflexes may be absent for a time; the pupils may be wide and react sluggishly to light if the patient be under the influence of bromides; in chronic epileptic dementia anomalies of the deep reflexes and the movements of the pupils occur as a result of secondary organic disease of the brain.

The differential diagnosis has also to deal with brain tumors, focal cerebral disease, disseminated (multiple) sclerosis, and, most important of all, paretic dementia (paresis), in all of which convulsions occur, and sometimes apparently as isolated symptoms.

Focal cerebral disease is revealed by permanent disturbances of the deep reflexes and paralyses more or less pronounced.

Multiple cerebro-spinal sclerosis is to be diagnosticated by several more or less pathognomonic symptoms or signs:

partial paralyses, exaggerated reflexes, scanning speech, tremor, cerebellar gait, partial optic nerve atrophy, etc.

Paretic dementia may early present epileptoid and paralytic seizures (attacks) much resembling a frank epileptic fit. The differential diagnosis must rest on the presence of positive signs of the organic cerebral disease: pathologic alterations of the deep reflexes; anomalies of the pupils; tremor of lips and tongue; characteristic speech; dementia; leucocytosis of the cerebro-spinal fluid.

TREATMENT of epileptic insanity has two objects in view: (1) to place the patient in an asylum where danger of harm to himself and others will be reduced to a minimum; (2) medical and hygienic treatment of the underlying neurosis.

In some states there are special epileptic colonies for the care and employment of chronic epileptics. The success of these institutions in improving almost all cases and even in curing a few cases of chronic epilepsy, is very encouraging, and it is to be hoped that all the states will follow this example.

The principal points of general treatment lie in regulating the diet, and general hygiene of life, apportioning the time properly between work and amusement, and removing all sources of nervous strain and excitement.

Medicines that influence epilepsy are very numerous, but of these the bromides are most generally useful. However, the indiscriminate, careless, and immoderate use of bromides is to be as much condemned as the skillful use of them is to be commended.

It is a fact that "bromism" increases fits in an epileptic, sometimes inducing a fatal "status epilepticus"; on the other hand, abrupt suspension of the bromides, if they are

being taken in large doses, may have the same effect. In general there are two rules for their administration: never push the dose to the extent of producing bromism; never suspend the administration of bromides except by a gradual reduction of the dose.

The treatment of the insane state must be symptomatic, aside from the administration of bromides or other remedies for the fundamental neurosis.

LESSON XXIII.

Hysteric Insanity.

"Hysteria is a psychic state (abnormal) which renders the individual liable to auto-suggestion" (Babinski).

The direct symptoms of hysteria are all psychic and always the result of auto-suggestion, or indirectly induced by suggestion derived from others. By auto-suggestion is meant the spontaneous origin and acceptance of an idea as true that is actually and more or less evidently false; suggestion means that such an idea has been derived from others. The influence of "suggestion" on normal persons is very great, but by them it is controlled or modified by other rational ideas. In hysteria the suggested idea acts with overpowering force and temporarily destroys the logic of facts; or it becomes a dominating idea of *exception* to the logic of association of ideas.

Hysteria also reveals itself in a high degree of emotionality, great emotional instability, great emotional activity (intensity), and great psychic impressionability. This emotional state is probably a very important factor in developing and maintaining the "suggestibility" that forms the distinguishing mark of hysteria.

It is impossible to draw a definite line between normal emotionality and abnormal emotional excitement; but distinct hysteric symptoms are abnormal. These may be

briefly enumerated: sudden attacks of continued laughing or crying, paralyses, contractures, pains, hypesthesias, anesthesias, hyperesthesias, etc., none of which present the accompaniments of organic disease of the nervous system; and the hysteric convulsion. These primary symptoms of hysteria, all of mental origin and nature, are the result of some form of suggestion and are curable by mental treatment ("persuasion," Babinski).

THE DIFFERENTIAL DIAGNOSIS between hysteric accidents or symptoms and those due to organic nervous disease depends essentially on the absence of the special signs always indicative of organic disease of the nervous system, which are discussed in some detail in preceding lessons. Here it is only necessary to consider in particular the hysteric convulsion.

Formerly much was written of "hystero-epilepsy" and this meant hysteria with convulsions. Now this term is properly used only to indicate a combination of hysteria and epilepsy; for the hysteric convulsion is absolutely distinct from the epileptic convulsion and usually readily distinguished from it.

The hysteric convulsion is characterized by an aura (sensation of choking or suffocation), a hoarse cry, and perhaps a fall (if the patient has not had time to sit or lie down), after which the muscles are thrown into more or less tonic and clonic contractions; the face becomes congested, and the patient rolls about wildly, and finally may assume the strained position of opisthotonus, the heels and head only touching the floor. This period lasts a few minutes, and when the convulsive (clonic) movements have gradually ceased, the patient seems to come to herself, and shows by facial expression and action that she is delirious

and hallucinated. She may assume passionate or silly attitudes and make corresponding gestures; or she may show terror and rave wildly about, striking those about her and destroying everything within her reach. After a shorter or longer continuance of this hallucinated state, the patient actually comes to herself immediately or through sleep. The disturbance of consciousness is profound, though very rarely as marked as in the epileptic fit. In this disturbance of consciousness lies the element of delirium which finds its prolonged expression in acute forms of hysteric insanity.

If the convulsion is seen, it is almost always possible to distinguish it from epilepsy by its character and by the fact that the pupils react normally. Where a probable diagnosis has to be made from a description of the seizure, it is to be based on the following points: a patient is rarely severely injured in an hysteric convulsion; the tongue is never bitten except by design, though the lips may be; there is no loss of control of the sphincters as so often happens in epilepsy; hysterics choose convenient places and times for their attacks; they usually have some memory of the events of the attack and describe them; they do not complain of the severe headaches of epileptics; the attacks last much longer than those of epilepsy as a rule, if the period of post-epileptic sleep is not taken into account.

As in epileptic insanity, the acute hysteric psychoses may be called *pre-hysteric, post-hysteric,* or *equivalent,* with relation to the convulsion.

The nature of the mental disturbance is essentially that of the hallucinatory delirium that characterizes a period of the hysteric attack. Hallucinated, the patient is in a state of wild excitement which may reach the degree of furious mania with profound disturbance of consciousness; or the

picture presented may be that of passive hallucinatory delirium with catatonic or cataleptic symptoms. The mental equivalent of an attack may also occur in the form of a state of clouded consciousness with attacks of excitement or stupor; or a silly expression and manner may be prominent. Hysteric ecstasy occurs in which the patient seems lost in contemplation of some vision.

The sleep following a convulsion may take the form of narcolepsy, which may also occur as an isolated equivalent for the hysteric convulsion.

The duration of these acute mental conditions is variable, usually short; in some cases they may be prolonged for weeks or months.

Prolonged or chronic insanity on the basis of hysteria presents many forms having some special symptoms that are more or less colored by the hysteric basis.

THE HYSTERIC CHARACTER may be regarded as a psychic degeneration, which makes the patient a more or less impossible or disturbing element in the household and community. There seems to be a loss of moral sense with development of colossal egotism, and an impulse to lie, to malign others, to make trouble and excite sympathy. Such persons are capable of criminal acts of a grave kind—false accusation of crime, arson, theft, personal violence; and they become more or less dangerous, especially for the reputation of others and the peace of the household. Usually some of the somatic signs of hysteria are discoverable on examination (anomalies of sensibility).

The MANIA OF HYSTERIA presents usually a religio-erotic series of delusions. Melancholia is less profound than simple melancholia and the patient is more open to influence;

the expression of sadness and the delusions seem to be less real and more like a voluntary exaggeration of distress.

As already indicated, paranoia on an hysteric basis usually presents erotic and religious delusions.

The symptoms of hysteric insanity, while in no way pathognomonic, present certain special features.

The hallucinations are for the most part visual, though errors of any or of all the senses may occur. Usually they are of an unpleasant kind (animals, devils, etc.), but those of a pleasant kind are not excluded.

Not infrequently hysteric patients present the phenomenon of *double personality,* with two distinct series of memory-pictures, to which states of somnambulism belong.

The memory for the events of an attack of acute hysteric insanity (hallucinatory delirium, mania,) is usually very imperfect owing to the cloudy state of self-consciousness characteristic of such mental disturbance. In some instances there is a fantastic distortion of what remains in memory and the imagination of the hysteric, almost always lively, transforms or embellishes the few facts that are recalled; just as normal persons by reason of imperfect memory of a dream, are led to embellish it with details, not recalled, but suggested by the remnants of the dream that are reproduced in the waking state.

The sexual sphere, once considered as the fundamental element of disturbance in hysteria, often presents certain anomalies of exaggeration or absence of normal sexual feelings, but in many cases no relation between sexual feeling and hysteria can be traced.

To the special symptoms of hysteric insanity belong all the distinctly hysteric functional disturbances. It is really upon the presence or history of one or more of the so-called

hysteric symptoms that the diagnosis of hysteric insanity depends, in spite of the fact that the mental symptoms have features more or less distinctive.

ETIOLOGY. Hysteric insanity is the ultimate development, the final result, of hysteria, and therefore its causes are those of hysteria, which are found in nervous degeneracy, usually of hereditary origin, and certain accidental or exciting influences.

Hysteria affects both sexes at all ages; but it is most frequent in the female sex, and hysteric insanity is much more frequent in women than in men. Hysteric psychoses sometimes affect boys during the pubescent period, and in the female sex they are most frequent at this period and at the time of the menopause.

The immediate exciting causes are usually found in mental or moral shock, alone or combined with physical trauma. Thus all accidents that cause fright or fear may be effective in the hysteric; and care, anxiety, disappointments, sorrows, etc., may act in the same way.

The PROGNOSIS of hysteric insanity is not unfavorable, especially of the acute forms, but relapses are very common and may conduct the patient to secondary dementia—the common result in the more chronic forms. Since hysteric insanity is a symptom of hysteria, the disappearance of the insane state (recovery) does not mean recovery from hysteria.

The DIAGNOSIS of hysteric insanity depends upon the diagnosis of hysteria by the history or by the presence of hysteric symptoms, together with the clinical pictures of insanity more or less characteristic of hysteria. The mental symptoms of hysteric insanity show marked changeability,

rapid variations, and they are frequently easily influenced by persuasion (suggestion).

In the insane, as in the sane state, the ideas entertained exercise a marked influence on the body to disturb secretions or induce paralyses and anomalies of general sensibility.

Hysteric insanity must be distinguished from organic insanity and from the epileptic psychoses.

Organic insanities are recognized by the objective signs of organic disease of the nervous system; but the possible and the frequent combinations of organic nervous disease and hysteria must never be forgotten, and the error of interpreting both in one or the other sense should never be made. .

Observation of the convulsion is the only sure means of distinguishing between the epileptic and the hysteric attack. It should also be remembered that a patient may have both hysteria and epilepsy.

Treatment. The management of hysteric insanity calls for treatment of the mental symptoms present, on the lines already indicated in the discussion of the simple psychoses, and the treatment of the underlying neuro-psychosis (hysteria).

In general, hysteric insanity is best treated by isolation and rest in bed. A hospital is absolutely essential; for, as in the milder manifestations of hysteria, home-treatment is a sure barrier to success. For a time the acute hallucinatory insanity of hysteria that occurs before, after or as the equivalent of an hysteric attack, may be treated in a hospital to the advantage of the patient, since such forms of mental disturbance are often quite transitory; but if pro-

longed, commitment to an asylum is indicated, and from the first, if an ordinary hospital is not at hand.

The possibility of suicide is always to be considered, especially in states of ecstasy and depression.

When narcolepsy and catatonic symptoms are clearly of an hysteric nature, the patient should be isolated at once and fed by the tube. The prolonged sleepers reported in the daily press are neglected cases of hysteric insanity, left at home to sleep and finally die of inanition.

In certain cases the cure of Weir Mitchell is indicated.

Of late years hysteria has led to the treatment of women by surgical operations of more or less gravity (ovariotomy, etc.). It is absurd to believe that a lacerated cervix, a misplaced uterus, or a cystic ovary, acts as an exciting cause of hysteric insanity. It is true that in many cases of mild hysteria an operation has cured hysteric symptoms by suggestion; in hysteric insanity, however, it is much better to postpone even indicated operations, unless the condition demand interference to save life. Hysteria has nothing whatever to do with the sexual organs; it is a cerebral disease.

LESSON XXIV.

Insanity Due to Material Causes. Toxic and Organic Insanity.

By insanity due to material causes we understand mental disease resulting from a material cause acting to interfere with or suppress the mental functions by interfering with the nutrition of the nervous system, and especially that of the cerebral cortex, or by destroying immediately essential elements of the cerebral cortex.

Material or organic insanities may be divided into two classes: (1) those due to intoxications; (2) those due to more or less gross lesions of the brain. The two are often combined, for the intoxications lead ultimately to gross lesions of the brain and nervous system.

Thus, an acute alcoholic insanity is in a strict sense an organic alienation, quite as much as an alcoholic peripheral neuritis is an organic nervous disease; for the insane state depends upon perversion of cerebral functions resulting from a material poison, which, if its influence be prolonged, induces actual organic changes in the constitution of the brain which may reproduce with remarkable accuracy in many of its details the picture of acute alcoholism—inco-ordination, excitement, enfeeblement of memory, emotionality, inattention, etc. The arrest or alteration of nervous functions due to the direct influence of a poison like alcohol is due to a tem-

porary effect on certain nerve-elements, which may be absolutely destroyed if the influence of the poison be prolonged; then the temporary clinical picture becomes permanent.

What is true of exogenous poisons is also true of those generated within the organism. The most noteworthy examples of endogenous intoxication leading to insanity are those arising from perversion of the function of the thyroid gland, or from lack of development or destruction of that gland. In the course of exophthalmic goitre mental symptoms are rarely wanting, and it is possible that these and other symptoms of this disease are due to an auto-intoxication resulting from perversion of the functions of the thyroid gland.

Auto-intoxications are frequent as a result of disturbance of the function of the alimentary canal. The direct means of diagnosticating the existence of an auto-intoxication of this kind is the discovery of acetone and indican in the urine.

Diabetes, nephritis, disease of the liver, and pulmonary tuberculosis, are also frequent causes of auto-intoxication.

When the thyroid gland does not develop or is arrested in its growth the result is so-called infantile myxedema, or sporadic cretinism, always attended by lack of development of mind—idiocy; if in adult life the gland be destroyed (by disease or operation) the physical symptoms of myxedema develop and the mental condition becomes like that of secondary dementia—apathetic dementia.

The diagnosis of the nature of the case of insanity which depends upon some form of endogenous intoxication is more a matter for general internal medicine than for psychiatry, for there is nothing absolutely pathognomonic in the men-

tal symptoms to guide us; we must depend entirely upon the results of physical examination.

Naturally the treatment of such insane conditions must be based upon the nature of the cause. There are, of course, special indications in cases of auto-intoxication from faulty indigestion; and in all cases of anomalies of the thyroid gland the administration of thyroid extract is indicated, except in Grave's disease in which this substance usually aggravates the symptoms.

By far the most frequent and important form of exogenous intoxication is alcoholism; but morphine claims also a large number of victims, and in recent years the slaves of cocaine have rapidly increased.

Chronic alcoholism. The general effects of continued excessive indulgence in alcohol are covered by the term chronic alcoholism, part of the symptoms of which are mental. We cannot properly study the mental symptoms due to alcohol without at the same time considering the effect of the poison upon the organism at large.

Perhaps the most important and the earliest effect of alcohol is to induce those changes in the walls of the blood vessels known as arterio-sclerosis, which is often associated with disease or degeneration in other vital organs—the kidneys, the liver, the heart and the gastro-intestinal tract.

With such widespread involvement of the vegetative organs, we are not surprised to find parallel changes in the nervous system. It is now well known that one of the most frequent causes of inflammation and degeneration of the peripheral nerves is alcohol, and one of the prominent symptoms of alcoholic neuritis is amnesia; in other words, this mental symptom is almost a constant accompaniment of the disease-process that affects the peripheral nerves. It seems

justifiable to refer the mental symptoms of peripheral neuritis to changes in the nervous elements of the cerebral cortex, which may be assumed to be of the nature of those found in the peripheral nervous system. That in such cases there is something more than a functional disturbance of the cortex, is proved by the fact that a more or less marked and lasting mental defect results in all severe cases of alcoholic neuritis.

The blood vessels of the brain are quite as prone to undergo degeneration as those of other portions of the organism. Once such changes have been initiated as a result of alcohol, the ground has been prepared for the development of mental symptoms. But the influence of alcohol is not confined to the blood vessels and the nervous elements; it also implicates the membranes of the brain, which in chronic cases are found thickened as a result of inflammation. Other findings in the brain of chronic alcoholics are cerebral atrophy, cortical atrophy, hyperostosis of the cranium, etc.

Chronic alcoholism as expressed in these pathologic changes is a condition that gradually develops. Therefore it is clear that the result in mental symptoms will vary with the time at which these develop. In other words, mental symptoms which arise in a chronic alcoholic, before the more serious and grosser alterations of the blood vessels of the brain have taken place, may pass away, if the cause is removed; but when they depend upon actual degeneration of vessels or atrophy and destruction of nervous elements, disappearance of the mental symptoms, or complete recovery, is not to be expected.

THE CHARACTERISTIC MENTAL SYMPTOMS of chonic alcoholism are made up of moral and intellectual weakness

with remarkable excitability of the emotions. The drunkard shows defect, first, in his attitude toward life. He becomes an egotist and looks at life and humanity from the standpoint of a cynic.

On the emotional side he is irritable and prone to outbursts of rage in which he may commit the most atrocious acts. There are also frequent periods of depression. Attempts at suicide are very common. Gradually all the intellectual faculties suffer, and with weakened memory and enfeeblement of all the elements of thought, the patient progresses to pronounced dementia.

This condition is favorable for the development of delusions, among which those of marital infidelity are prominent. Headache, vertigo, confusion, and sleep disturbed by frightful dreams, are regular phenomena. Elementary psychic disturbances are observed in the form of illusions and hallucinations, especially of sight and hearing.

THE MOTOR DISTURBANCES of chronic alcoholism are well known. The tremor is quite characteristic—most marked when alcohol is withheld, to diminish or disappear with renewed indulgence. Cramps, especially in the calves, are troublesome and significant symptoms. In the late stages of the disease actual muscular weakness is observed in the extremities, probably referable to inflammation of the peripheral nerves.

The COURSE of chronic alcoholism is progressive, depending, of course, in a measure upon the continuance of indulgence in the poison. The difficulty experienced in weaning such unfortunates from that which has become for them almost an organic necessity, makes the *prognosis* very unfavorable.

The TREATMENT of this condition consists of withdrawal

of alcohol and efforts to strengthen the weakened organism. These indications cannot be fulfilled in private practice. Success is only possible when the patients are treated either in asylums or in hospitals devoted exclusively to their care.

There are several important clinical varieties of mental disturbance which may make their appearance in the chronic alcoholic—delirium tremens, alcoholic hallucinations, and alcoholic epilepsy stand out prominently; but in the course of chronic alcoholism we may have presented the clinical picture of almost any of the functional insanities: for example, *alcoholic melancholia, alcoholic mania,* a chronic delusional insanity with ideas of persecution—*alcoholic paranoia.* Remembering the profound degenerative effect of alcohol upon the elements of the nervous system in general, it is not to be wondered that we sometimes observe cases which present many of the signs and symptoms found in *paretic dementia;* and it becomes necessary to differentiate carefully between these two disease-pictures, because in some cases of paretic dementia on an alcoholic basis proper treatment is followed by recovery.

Delirium tremens, which occurs only on the basis of chronic alcoholism, presents both mental and physical symptoms. The delirium is essentially hallucinatory; the physical symptoms (tremor, vegetative anomalies, etc.) are only aggravations of conditions that have previously existed (chronic alcoholism).

The exciting causes of delirium tremens are repeated and continued excess in drinking which entails insufficient nourishment; sudden abstinence when alcohol is taken habitually; great emotional excitement; and anything that weakens the organism already enfeebled—lack of food, diarrhoeas, infectious diseases (especially pneumonia), trauma (especially fractures).

The delirium never comes on suddenly, but is developed more or less gradually through increase in the number and intensity of hallucinations. The prodromes are moroseness, irritability, anxiety, bad dreams, tremor of the hands and tongue, with occasional transitory hallucinations, with finally sleeplessness and increased motor restlessness, with which hallucinations become constant and take full control.

The hallucinations occur at first only in the dark, but finally are constant. They are mainly visual and made up of visions of real and fantastic animals of all kinds—rats, mice, ants, spiders, horses, dogs, elephants, snakes, etc., which seem to surround the sufferer in crowds and to assume threatening attitudes and manner. Anomalies of general sensibility lead to interpretation of paresthesias as due to the crawling of snakes, worms, and insects over the body; these ideas may induce visions of the images evoked primarily by the sensory anomaly. Auditory hallucinations may arise and be interpreted as the characteristic cries of the animals seen. Doubtless the majority of the hallucinations of delirium tremens are in reality illusions.

Consciousness is finally profoundly disturbed and the patient is in a constant state of fear and fright, but usually his attention can be attracted for a moment, even when the delirium is extreme.

Delusions, more or less fragmentary, may be developed, and the hallucinations may lead to acts of violence toward supposed enemies.

The tremor may become general, and general clonic convulsive movements may supervene.

The pulse rises to 100 and respiration is accelerated; the urine becomes scanty and may contain albumen; perspira-

tion is usually profuse; constipation and gastric disturbances are constant.

If fever occur it is due to some complication, or denotes that the case has developed into acute delirium (acute delirious mania). The case may take on an adynamic character with low muttering delirium, picking of the bedclothes, subsultus, etc., progressing to stupor.

The *duration* varies from a few days to a week, with relapses that may prolong the case several weeks.

The *terminations* may be death, from physical complications, the development of grave delirium with fever, or exhaustion; recovery; chronic psychoses.

In mild cases recovery may follow a critical sleep; usually it takes place gradually, through a period of physical improvement with fading of the hallucinations and correction of the delusions.

The treatment finds its first indication in the need to induce sleep, but the means for the attainment of this end must be modified individually, and in certain complicated and adynamic cases stimulating rather than hypnotic measures must be employed.

In young and strong patients presenting no vascular disease and no sign of fatty degeneration, chloral, opium, and morphine may be used without danger. Chloral hydrate is best given in smaller doses (15 to 20 grains) repeated every three or four hours until sleep comes on; it may be combined advantageously with morphine (1-8th to 1-6th of a grain). If after a few doses the desired result is not obtained, the medicines should not be pushed, but opium or morphine alone should be tried. These act less quickly than chloral, but are on the whole surer. There is a great advantage in using them hypodermatically. The hypnotic effect once

obtained, the opiate should be continued in smaller doses, and only gradually withdrawn after convalescence is seemingly established.

In cases presenting physical complications (surgical injuries, pneumonia, etc.,) chloral is absolutely contraindicated; but opium, etc., may be used combined with heart stimulants (strychnia, ether, etc.), with careful attention to the state of the heart.

The use of brandy, whiskey, and strong wines may be most advantageously combined with the hypnotics. In certain cases the delirium arises from lack of alcohol, and a drinker should never be allowed to develop the disease from lack of alcohol during the course of some disease or confinement to bed from an injury. Drinkers brought into hospitals and prisons should be carefully watched for premonitory signs of delirium (sleeplessness, etc.) and immediately be given an alcoholic stimulant to tide them over, with hypnotics as indicated. Every effort should be made to strengthen a debilitated patient by attention to the gastro-intestinal condition, and the administration of tonics and food easily assimilable. During convalescence, tonics (iron, quinine, strychnia,) and nerve sedatives (bromides) may be continued and alcohol gradually withdrawn. In adynamic states (low muttering delirium, sopor, fever,) stimulation is all that can do good. This is best accomplished by strong spirits in generous doses, with strychnia and other cardiac stimulants. Hypnotics may be useful later, if the immediate danger is overcome.

LESSON XXV.

Toxic and Organic Insanities.
Alcoholic Insanity—(Continued).

The acute psychoses that occur on the basis of chronic alcoholism present more or less distinctive features or symptoms that deserve notice.

Alcoholic melancholia is characterized by its sudden beginning and short duration. Hallucinations of sight and hearing are intense and numerous, with consequent clouding of consciousness. The patient is anxious and distressed to an extreme degree, which recalls agitated melancholia, with precordial anxiety leading to raptus and attempts at suicide. Self-accusation occurs only in cases of considerable duration (a few weeks). The hallucinations of hearing have often a sexual content, and those of sight recall those of delirium tremens (animals, etc.). Alcoholic melancholia may occur after a series of excesses (acute alcoholism), or develop on the basis of chronic alcoholism after some accessory exciting cause (shock, emotional excitement). The *prognosis* is very favorable. The treatment is that of melancholia, and here opium is especially useful, with attention to general indications.

Alcoholic mania is a very grave disease that arises on the basis of chronic alcoholism. It develops out of irritability with change of character and sleeplessness, and passes

quickly through a stage of exaltation to furious mania. The ideas are ambitious and grand, and the patient is always brutal and often erotic. Religious delusions are frequent (God, Christ, etc.). At the height of excitement the patient resembles a maniacal paralytic dement (grand delusions, clouded consciousness, tremor of face, lips, tongue and hands, unequal pupils). For this reason a case may present difficulties in differential diagnosis. The *prognosis* is unfavorable, but recovery with defect may occur in the earlier stages. In cases that become chronic there is progressive degeneration of the nervous elements, and the patient finally dies in profound dementia with decubitus, if he does not succumb to some intercurrent disease (diarrhoea, pneumonia, general wasting). The pathologic findings are those of chronic alcoholism. The *treatment* in the early stage should be directed to the excitement and cerebral congestion (opium and ergotine) with tonic general measures. The final stages call for such care as is given to the helpless paretic dement. (See Dementia Paralytica.)

Alcoholic hallucinatory delirium presents some distinctive features and varieties. (1) Repeated excessive drinking with other accessory causes may induce an hallucinatory delirium that lasts but a short time, rarely more than *a few hours*. The clinical picture is that of hallucinations of sight and hearing of frightful content, with reaction in precordial anxiety and clouded consciousness, and possibly acts of the greatest violence toward others and things. Subsidence of the delirium leaves but a very imperfect memory of the events of the attack. (2) Frequently we meet a form of hallucinatory insanity of a persecutory type of longer duration. The hallucinations of hearing are the most prominent and are the primary symptoms. Those

of sight are also common. The content of auditory hallucinations is usually sexual and obscene (insults of the grossest kind). The patient develops thus delusions of persecution and may be driven to acts of defense or vengeance. The delusions of marital infidelity are here very common. Delusions of poison arise occasionally, especially from unpleasant hallucinations of taste and smell. Delusions of personal importance may occur, as in paranoia. States of anxiety resembling those of alcoholic melancholia may occur. The physical symptoms are those of chronic alcoholism. In the acute cases, the prognosis is not unfavorable, though dementia is to be feared; in the milder and sub-acute cases the result is secondary dementia, possibly a secondary paranoia. The treatment must be along lines already indicated.

Alcoholic paranoia presents the following specific features: the sexual content of the persecutory delusions with visual (alcoholic) hallucinations foreign to other forms of paranoia; the brutality of the acts of vengeance, and the early signs of dementia that always appear.

Pseudo-paralytic dementia on the basis of chronic alcoholism presents practically all the symptoms of dementia paralytica, and only careful study of the given case suffices to clear up the diagnosis. The points that aid in making the distinction are: the alcoholic history; anaesthesia of the lower extremities with spontaneous pains (neuritis); the severe and persistent headache; the delusions of marital infidelity or their equivalents; the visual hallucinations of alcoholism—all of which are foreign to true dementia paralytica. Syphilis, the cause of paretic dementia, and alcoholism may be combined in a given case—another cause for caution. Examination of the cerebro-spinal fluid and con-

sideration of the state of the pupils might aid materially in a given case: pupillary anomalies are strongly significant of the true form, for they occur only in the advanced and degenerative stages of alcoholism; leucocytosis of the cerebrospinal fluid, with albumen, would indicate a general meningeal process and leave little room for a favorable prognosis, even though the etiology of the case were clearly and exclusively alcoholic. In a doubtful case the prognosis should be guarded and not absolutely unfavorable, as it must be practically in true dementia paralytica. The treatment does not differ essentially from that of paretic dementia. Recovery from alcoholic pseudo-paralysis may be complete, but more commonly it is with some degree of mental defect.

Alcoholic epilepsy, like alcoholic insanity, depends upon cerebral changes induced by chronic alcoholism; however, in those predisposed to epilepsy periodic alcoholic excess might excite convulsions. Doubtless in many cases of alcoholic epilepsy there is predisposition, but there are many other cases in which the unique cause of the epilepsy is chronic alcoholism coupled with periodical over-indulgence. The epileptic attacks may be in the form of partial convulsions (one member, one side,) or general and identical with the so-called idiopathic epileptic seizure; here too, we meet *petit mal* and other accompaniments of epilepsy: mental confusion, furor and mental equivalents. Alcoholic epilepsy may at first manifest itself only in fits separated by long intervals and only in connection with excess; but ultimately the attacks occur more and more frequently and in the interval between periods of over-indulgence in drink. Rapid and profound mental deterioration supervenes when the fits become numerous. Early in the case, abstinence is sufficient to prevent attacks; bromides

have a favorable effect as in idiopathic cases. Owing to the alcoholic habit and the actual brain changes, the prognosis, if not absolutely bad, is still very unfavorable.

Morphinism.

Morphinism, if less frequent than alcoholism, is a growing evil, and very frequently the physician is called upon to treat or cure those that through accident or error have become addicted to the use of this sedative and stimulant. Almost any person, under favoring circumstances, may become an habitué of morphine or opium; but in general it may be said that the victims of morphine are predisposed by a neurotic constitution, by virtue of which the drug acts on them more as a stimulant than as a sedative. In certain cases a single experience of its effect is sufficient to excite the desire for a repetition, and such persons easily become confirmed users of the drug. Other cases arise from prolonged therapeutic use of some form of opium as a remedy for pain. However acquired, the habit is most difficult to overcome, and hardly to be successfully eradicated except by prolonged and skillful treatment in a hospital. The permanency of cures thus accomplished depends largely upon individuality; for the neurotic constitution being unchanged, only favoring circumstances are required to bring about a return to the old habit.

The effects of opium upon the mind are less disastrous than those of alcohol, but they are none the less serious and incapacitating for the individual.

In chronic morphinism, though the intellect remain comparatively intact, the highest mental functions are invariably weakened: energy, moral tone, and character become low-

ered to a great degree, and finally with weakened memory and generally weakened mental powers the morphinist becomes incapable of an ordered, active life and a prey to depression and melancholy.

THE PHYSICAL SYMPTOMS of morphinism are merely those due to the influence of morphine to diminish the secretions in general. All the secretions of the gastro-intestinal tract are more or less diminished: the mouth and throat are dry; the gastro-intestinal secretions are reduced in amount and altered in quality, leading to imperfect assimilation, and constipation favored also by lessened peristalsis. The skin becomes dry and harsh with arrest of secretion from the sebaceous glands, but perspiration may be increased. The urine may be decreased in amount and contain albumen. The menses may be arrested. On the motor side there are muscular weakness, myotic pupils, weakness of the heart's action. The general condition is marked by pallor and coolness of the skin with general wasting which in extreme cases may be a true marasmus. Sleeplessness may become very obstinate.

When a morphinist is deprived of his stimulant, after a short time (a few hours) certain symptoms due to this deprivation come on: itching of the skin, yawning, nausea, diarrhoea, and increasing restlessness and mental distress with general weakness, tremor, and pains here and there, with profuse cold perspiration. This condition may go on to induction of cardiac weakness, and hallucinatory delirium may develop; and finally the patient presents a state of inanition and exhaustion. Remarkable as possible symptoms of abstinence, are erections and seminal pollutions in men, and sexual excitement and actual orgasm in women.

THE TREATMENT of morphinism has for its object the

arrest of the habit and the physical and moral rehabilitation of the patient. For the attainment of this end restraint (by consent) of the patient in an institution is necessary in almost every case. With apparently the best will in the world, the morphinist is actually too weak morally to endure the suffering of a cure, which he gladly and sincerely consents to or seeks while under the influence of the drug; the moment his dose is reduced he will resort to deception to gain relief. When a cure is forced on an unwilling patient the surveillance and loyalty of nurses must be perfect; for relatives, friends, and nurses may be persuaded or bribed to accede to the sufferer's pleadings. In special institutions such sources of supply are excluded, and the method of gradual withdrawal can be carried out rigorously.

Owing to the dangers that attend sudden and complete suspension of the drug, the method of gradual withdrawal with temporary substitution of other sedatives is preferable and much more humane.

Most morphinists take far larger quantities than are essential to their comfort and the prevention of symptoms of abstinence. Therefore the daily dose may at once be reduced very decidedly. When the minimum dose has been ascertained, it may be gradually and progressively reduced, naturally without knowledge on the patient's part of the rapidity of the withdrawal. Usually it is necessary to extend the period of withdrawal over two or three weeks, or even more. The greatest difficulty is encountered in stopping the final dose, whether it contain the drug or not. As gradual substitutes for morphine, codeine and dionin may be employed, and thus the final withdrawal consists of the suspension of the substitute.

During the cure the heart should receive careful atten-

tion, and the troublesome restlessness and sleeplessness should be treated with bromides, brandy, and other hypnotics chosen always with a view to avoid danger from a weak heart. Chloral hydrate should never be used.

Careful attention to digestion and assimulation is required, and the diet should be generous and fortifying, though always in a form easily digested and readily assimilable.

With the suspension of the drug, only a beginning has been made. The patient must be physically restored by a tonic regimen, and his moral tone must be raised to a level that will aid him in resisting the fatal tendency to return to the drug under circumstances similar to those that attended the acquisition of the habit. These ends can only be attained by a prolonged residence in an institution where there is no possibility of relapse.

LESSON XXVI.

Dementia Paralytica.

Dementia paralytica is a diffuse inflammatory disease of the meninges and cortex of the brain often associated with similar involvement of the spinal cord and peripheral nerves, manifested clinically in mental and physical symptoms referable to the progressive destruction of the nervous elements.

The mental symptoms consist of progressive dementia with intercurrent manifestations of elementary intellectual anomalies and emotional disturbances, all progressively advancing to annihilation of the mind.

The physical symptoms are such as may be referred to destruction of the nervous mechanism that preside over the motor, sensory, trophic, secretory, and vasomotor functions of the organism: pareses; paralyses; tremor; incoordination; anesthesias; alterations of the organs and tissues of the body; congestion; cerebral attacks, etc.

There are several synonyms: paresis (popular); brain softening (popular); general paralysis of the insane; general paralysis; progressive paralysis; paretic dementia; paralytic dementia. Anatomically it has been called *chronic diffuse pericncephalo-meningitis.*

The general clinical picture will serve as an introduction to the various types and symptoms of the disease.

The clinical types of paretic dementia are named from the predominance of some special symptom or symptoms. The general type is a case that presents in its course all the elements of the various types.

THE CLASSIC TYPE. At the age of full maturity a man in business life, working hard, carrying great financial responsibilities, attracts attention by a gradual change of character: he becomes quieter, less mobile emotionally, less inclined to distraction, seemingly more absorbed in business; and this change is attributed by friends to overwork. With variations of mood, the depression continues. After weeks or months there is a complete alteration of feeling and action. The patient becomes gay, sanguine, and sees all in rosy colors. He is relieved of his incubus and finds that he can now do more work than ever with greater dispatch. His business judgment becomes to him clearer and he embarks in new enterprises with an assurance and foresight that he never had before. He becomes so satisfied with himself and his powers that he cannot resist making his friends participators in his business or speculative schemes, and in his generous effort and self-assertion raises the question of his sanity in the minds of his friends. Suspicion once aroused his friends look into his past acts and often enough find that in his accounts and in his writings there are omissions and errors that show that the patient has been suffering with mental impairment for a long time.

This state leads to medical advice at once or after it has become intensified to maniacal excitement, when examination reveals, besides the mental symptoms, certain signs of physical disease: unequal, myotic or Argyll-Robertson pupils; abnormal reflexes—absence or exaggeration; fine tremor of the hands, and especially fibrillary tremor of the

lips and tongue; some disorder of articulation shown in attempts to pronounce long words, or those containing lingual and labial consonants; tremulous handwriting with omission of words and syllables. Besides the emotional exaltation, the patient presents a marked feeling of well-being which may be expressed in a protest against any idea of sickness; defects of memory; lapses from polite manners in disregard of conventions; mobility of emotions—momentary laughing, followed by momentary tears; lack of appreciation of the gravity of the consultation—all of which are but measures of the degree of dementia.

This mental state may progress to the development of grand delusions of wealth, personal power, and position of the most absurd and outlandish character, intensified by episodes of wild maniacal excitement and sleeplessness. At any moment in the course of the development of these symptoms an epileptiform or apoplectiform seizure (convulsion or paralytic stroke) may occur and temporarily bring the patient to bed and seem to put his life in danger; but very soon all paralytic or convulsive symptoms pass away, leaving the patient still more demented than before, and possibly with other signs of organic disease of the nervous system decidedly marked. All the active mental symptoms may now subside; the patient becomes lucid and quite himself, but the signs of lowered mental grasp and those of organic nervous disease remain, with some depression, perhaps, from consciousness of the condition, and abnormal mental irritability and exhaustibility.

This period of remission may continue indefinitely; but ultimately there is an aggravated return of the former symptoms; or there may be a variation in the sense that delusions of a depressive character predominate. Whatever the active

mental symptoms, there is a steady increase of motor weakness tending to marked general paresis, tremor, inco-ordination, lack of control of the sphincters, and increase of dementia to a profound degree. Finally, or even early, symptoms of cerebral irritation may appear in the form of spasmodic grinding of the teeth and repeated partial or general convulsions. The physical condition suffers decidedly sooner or later, ending in bed sores and fatal marasmus; or the patient dies in some form of cerebral seizure, after almost complete obliteration of the mind.

The psychic symptoms in detail. Mental weakness is the prominent and predominating psychic symptom; it colors all other mental phenomena and lends to them more or less striking and characteristic features. Memory, judgment, logic, association of ideas, moral ideas, and inclinations are weakened and dulled, and all intellectual activities show blurring of normal distinctness with abnormal wandering or weakness of attention. Moral feeling and emotional activities suffer in the same way—they are superficial, transitory, and contradictory.

The maniacal states of paralytic dementia present themselves in all degrees from the mild feeling of personal well-being to the most intense degree of furious excitement in blind raging and destruction. They are to be recognized surely as part of paretic dementia by the other symptoms of that disease: physical signs; dementia, especially the defects of memory. But maniacal excitement may temporarily mask other signs of paresis, and therefore maniacal patients whose history is unknown, and especially if they be at the age when paretic dementia is common, should be regarded with suspicion, even in the absence of the positive physical signs of paresis. The furious attacks of mania in the course

of paresis are of sudden outbreak, short duration, and sudden subsidence. They may occur at any period of the disease, and are doubtless due to congestive (irritation) cerebral conditions brought about by disturbed vasomotor innervation.

THE MELANCHOLIC PHASES of dementia paralytica are to be differentiated from simple melancholia with certainty only by other positive signs of organic cerebral disease. Nihilistic hypochondriac ideas are quite characteristic.

THE DELUSIONS of dementia paralytica are to a certain extent characteristic of the disease, especially because of the mental weakness they reveal in their internal structure and their relations to other ideas and to time, place, and personality. Grand delusions, though frequent in the disease, are neither necessary nor pathognomonic, except through their absurdity and outlandishness which result from the underlying mental enfeeblement.

The striking feature of all delusions in paretic dementia is their absurdity, silliness, or impossibility, of which the patient seems totally unaware; they have, too, but little effect on the conduct of the patient, in a logical sense, for he feels no need to do more than express his fantastic ideas; to attempt to defend them by reasoning would detract from his enjoyment of his self-concerning sense of their reality. At the same time that he expresses ideas of his enormous wealth or power, he makes no effort to account for the evident contradiction with his surroundings, and at the same moment he may act in accord with actual circumstances. Any logical effort to explain evident contradiction of ideas and actuality is weak and transitory. Such delusions have a basis in an emotional state, and being weak in logic and indefinite in detail are easily altered by suggestion; or varied with each

expression of them by the temporary and accidental association of ideas.

One notable feature of the grand delusions of dementia paralytica is the common inclination of the patient to invest others with their own remarkable powers, or at least, their generous inclination to make their friends, or perhaps the whole world, benefit by their ability. Usually, however, if the world at large is to be the wiser, better, or richer, those nearest are to share with them in the supreme glory of the unique cause of the transformation of the universe.

In contrast with delusions of grandeur are those of an opposite character (micromania) usually expressed in relation to the body; hence a form of the disease known as *hypochondriac paralytic dementia.* Here the delusions show the same features of absurdity and illogicality, with want of appreciation of the evident contradiction of facts and the ideas expressed: in spite of the fact that the patient walks, talks, and eats he asserts that his members are gone, or changed to glass, that he cannot move, or eat or talk, though moving and eating while expressing his ideas. The most absurd and silly notions find expression here, contradicted immediately by the actions of the patient. Such lack of logic is a measure of the profound enfeeblement of the mind. The possible sudden change from grand ideas to those of an opposite kind is to be noted as very distinctive of the nature of the case.

In women suffering with paresis the delusions are more modest, less strikingly absurd, but they never want the peculiarities that indicate the fundamental dementia.

A few examples of paretic delusions will serve to show their nature, but it is always to be remembered that it is not so much the insane idea as its want of logical relation

to actuality, with the simultaneous want of appreciation of evident contradiction, that is indicative of the underlying organic disease of the brain.

The delusions depend for their content on previous surroundings and education. One patient claims to have the genius of Caesar, the wisdom of Plato, the eloquence of Cicero, and that he with his physician, who is equally endowed, can rule the world. Another possesses millions of money, of horses, of houses, and is the tallest, and the strongest man in the world. Another has the power of changing all into gold or diamonds, he himself is of precious stuff that transforms all that enters his body into gold; all that is evacuated is of great value. Another is carrying on great projects—millions of men are working on bridges to span the seas; all the steamships and railroads are his own, and he is still acquiring more. Another has the most beautiful clothes, the most perfect body, the most miraculous virility, a million wives and millions of children. Never is there more than a weak attempt to explain the lack of harmony between such ideas and actual surroundings.

Delusions may play a very subordinate role in paralytic dementia, and the disease presents itself in the form of progressive dementia merely; this is called the simple *demented form* of general paralysis. Here, however, there is also the feeling of well-being and the mental weakness shows in childish silliness, lack of appreciation of time, place, and personality, always with progressive increase of mental enfeeblement. This form of dementia paralytica is seemingly growing more frequent; it is probably the most frequent form of the disease. Many such patients pass for harmless dements, and find their way into asylums late or not at all.

In contrast with the frequency of delusions in this dis-

ease, is the *rarity of true hallucinations.* They may occur, but they are not elaborate in structure, and are usually associated with some episode of excitement. Illusions are more common and even frequent in the advanced stages of the malady, when the patients mistake persons and places and things, and gather up glittering objects and dirt for precious stones and gold.

LESSON XXVII.

Dementia Paralytica.
(Continued.)

The motor disturbances are numerous and widespread. Those of speech and articulation are usually among the first to appear.

Tremor early develops in the lips and tongue, leading to imperfect articulation of labials, dentals, and linguals; later to the early disturbance of articulation are added disorders of speech due to ideational defect (loss of motor speech ideas; loss of auditory word images) shown in various forms and degrees of aphasia, reaching the degree of absolute motor and sensory aphasia. Temporary aphasia may occur in connection with congestive attacks or paretic seizures.

The fibrillary tremor of the lips and tongue is very characteristic of paralytic dementia, and of much diagnostic value. It occurs during speech and independently of any voluntary movement, though most marked when the patient speaks or makes some movement at command (opening of the mouth widely; protruding the tongue). The facial muscles in general may present similar twitching movements. Often fibrillary twitchings of the temporal muscles is to be seen, and is very characteristic. Later this increases and shows in spasmodic grinding of the teeth so frequent in the later stages of the disease. Unconscious movements of

chewing in a patient under examination should arouse suspicion, if it cannot be immediately explained.

Tremor is very common in the hands, and often it is general. This may be further accentuated by inco-ordination of varied extent and degree. Inco-ordination may be finally very marked and very widespread. As a result of these disorders the movements are awkward, coarse, wanting in precision; the gait is uncertain, staggering or irregular, though these disorders may not be marked until the case is far advanced unless there be early involvement of the spinal cord.

Paralyses, partial and temporary, are frequent, and may be complete late in the disease; as a rule they are partial in degree (paresis). The paresis of the facial muscles is shown in the relaxed features from which all the lines of facial expression are erased, giving the face a blank, demented appearance. The extremities show actual loss of muscular power, even when all ordinary movements are retained. Temporary hemiplegia or general paraplegia may persist for a time after a seizure, with ultimately a return to the former condition, or there may be only partial restoration of former power. The sphincters show various forms and degrees of weakness, especially in the late stage of the disease.

The ocular muscles may be involved, occasioning diplopia, permanent or transitory. Disturbances of the iris are very frequent—fixed, unequal, dilated, myotic pupils; loss of the reflex to light, of accommodation—independent of intra-ocular anomalies.

The vocal cords often early show paresis in a change in the quality and tone of voice and tremor, and the voice may become nasal from weakness of the soft palate. Likewise the

function of deglutition may become impaired from involvement of related muscular mechanisms.

The reflexes in general present various anomalies, temporary or permanent, depending upon the particular underlying cause. The deep reflexes may be symmetrically or irregularly lost, diminished, or exaggerated. No rule can be stated, but it is very rare not to discover some pathologic alteration of one or more of the reflexes, and the discovery of these anomalies is of the greatest weight in formulating the diagnosis.

The superficial reflexes present no definite variations, but anomalies of the plantar reflex (Babinski's sign) may be significant.

The sensory anomalies are very difficult to investigate and estimate; anesthesias are more frequent than hyperesthesias. Pain is rarely complained of save in the early stages (headaches), but in certain cases presenting tabetic symptoms (involvement of the cord) there may be pains like those characteristic of locomotor ataxia. In the late stages of the malady all pain-sense may seem to be lost: the patient pays no heed to broken bones or open sores.

Trophic disturbances are constant in the late stages. The skin and nails are altered, the bones become fragile and bed sores are almost inevitable after the patient has been brought to bed by his increasing weakness and helplessness. Othematoma (insane ear) is more frequent here than in insanity in general (new growth of vessels).

Vasomotor disturbances appear early and are more or less continuous throughout the course of the disease. The most striking vasomotor anomaly is the inequality of the vascular innervation, which toward the end becomes general and continuous. Thus arise local and general elevations

and depressions of temperature; localized congestions, edema, and sweating; cerebral congestion and edema; and apoplectic strokes and local and general convulsions.

THE TEMPERATURE presents many variations in general and in connection with seizures. There may be daily variation; during congestive attacks and seizures there may be temporary hyperpyrexia; in the agony it may reach an extreme degree. In the late stages the temperature may be constantly subnormal.

Sexual desire may be itensified during the early course of the disease, but it is later obliterated.

THE SEIZURES of dementia paralytica are among the most important symptoms of the disease. The apoplectiform seizures may be partial (monoplegias) or general, leaving temporary hemiplegia behind. These attacks differ from those caused by hemorrhage in their accompaniment of elevation of temperature (fever is a secondary phenomenon after hemorrhage).

THE EPILEPTIFORM attacks may be partial or general in the conclusive manifestations. The fits may occur one after another, and the patient resemble one in status epilepticus. Elevation of temperature is the rule.

THE COURSE of the disease is more or less steadily progressive. Careful investigation of cases usually shows the development to have been insidious, no matter how stormy the outbreak of striking symptoms has been. Thus in reality the *duration* of the disease is much longer than the average period usually given in the books. The demented form lasts longer than those forms presenting excitement and frequency of apoplectiform and epileptiform seizures. *Remissions* in the course of the disease are frequent, and they may be so profound and complete as to simulate recovery.

They often make the detention of such patients difficult or impossible, because the friends are unable to appreciate the signs of dementia that are never wanting after the disease has once manifested itself. Always, however, the symptoms return, and after one or more of such remission dementia becomes marked and the disease continues its progress to annihilation of the patient.

The alterations of the cellular and chemical constituents of the *cerebro-spinal fluid* in dementia paralytica seem destined to afford important data upon which to base a diagnosis of the disease. It has been found recently that the cerebro-spinal fluid of paralytic dements presents a marked increase of leucocytes and albumens not found in the fluid when normal. These changes are not exclusively found in this disease, and therefore may not be a direct index of the nature of the disease-process affecting the central nervous system; but in doubtful cases with equivocal mental and physical symptoms, the character of the fluid might make it possible to definitely classify them. The operation of lumbar puncture is the means by which the fluid is obtained for examination. It is worthy of note that the withdrawal of a certain amount of the fluid in those presenting leucocytosis is unattended by the unpleasant symptoms that follow it in persons whose cerebro-spinal fluid is normal.

A case of paretic dementia presenting very acute and stormy mental symptoms and ending fatally in a few months is called *galloping paralysis*. *Ascending paralysis* is a term applied to cases that develop in persons presenting primary *tabes dorsalis*.

The average duration of this disease is given as about three years, but this average cannot be applied to a given

case. Some cases live a vegetative existence for many years after obliteration of the mind.

The prognosis is unfavorable; the disease is practically uniformly fatal; reported cases of cure are rare, and with few exceptions open to doubt concerning the correctness of the diagnosis. However, cure or arrest of the disease process is not impossible. Elevation of temperature, frequent seizures, and acute maniacal attacks, with rapid development of dementia presage that the case will progress with comparative rapidity.

The etiology of paretic dementia is of great importance. Modern medical authority is more and more inclined to accept the opinion of some advanced thinkers who regard syphilitic infection as the *sine qua non* for the development of general paralysis; just as *tabes dorsalis* is generally regarded as practically demonstrative of a previous specific infection. If syphilis is a necessary antecedent of paretic dementia, syphilis does not necessarily fatally lead to general paralysis or locomotor ataxia. Since all syphilitics do not develop these diseases, there must be other accessory or aiding causes which induce these maladies. If the person affected with lues must be regarded as a possible candidate for cortical and spinal degeneration, what are the factors that determine his fatal election? The answer to this question cannot be given with complete satisfaction, though theoretically we can determine certain factors that seem to aid.

It is remarkable that certain races in which syphilis is very common rarely present dementia paralytica. It is to be noted that such races live close to nature, are but partially civilized, and not subject to the strain of civilized society with its attendant excesses and weakening influences.

It seems highly probable, if not certain, that alcoholic and sexual excesses, mental strain in the form of excitement, worry and care, undue physical strain, and all influences leading to cerebral congestion (heat, head injuries) act as exciting causes. It should not be inferred from this that the disease is not common in persons of low mental endowment; it attacks the day laborer as well as the financier and brain worker.

It is much more frequent in men than in women. It rarely makes its appearance before the age of thirty or after fifty. But it may appear earlier or later; the cases of infantile general paralysis reported grow more and more numerous, and can be traced to hereditary syphilis.

The pathology and pathologic anatomy are still under very active discussion. If the most weighty cause is syphilis, it must be remembered that the lesions found are not of those that are recognized by pathology as syphilitic.

The anatomical findings are not uniform, though they are quite similar. Various types may be distinguished, but all are alike in the fact that there is marked atrophy of the nervous element of the cortex, especially in the frontal lobes. This atrophy is seemingly primary in some cases, in others apparently secondary to vascular changes and inflammatory processes affecting the membranes, or to pressure from lymph stasis and transudates. These differences of the disease-process seem to account, in a measure, for the variations of the clinical picture; the stormy cases may be the result of quasi-inflammatory conditions; the simple demented cases due to primary cerebral atrophy. Macroscopally we usually find clouding and thickening of the membranes, with attachment of the skull-cap to the dura; cloud-

ing of the arachnoid with milky bands along the vessels; attachment of the pia to the cortex of the frontal lobes especially, by virtue of which the surface has a worm-eaten appearance over the summits of the convolutions when the pia has been removed. The spinal cord may present both primary lesions (tabetic) and secondary degenerations.

THE EARLY DIAGNOSIS of this terrible malady is one of the most responsible tasks imposed upon the physician. Only too frequently the initial symptoms of the disease are considered as vague manifestations of overwork and neurasthenia, when more careful examination would reveal the organic nature of the trouble. If treatment is to do good it must be begun before severe anatomic changes have taken place.

But, before the question of diagnosis, arises that of prophylaxis. The interval between luetic infection and the development of symptoms of general paralysis varies within wide limits, but as a rule ten to fifteen years or more elapse. Knowing that any person that has been infected may become a paretic, it becomes the duty of every physician to so treat the original disease and so direct the patient by wise counsel that the danger may be diminished or averted. In the first place the treatment of the infection should be most thorough, painstaking, and prolonged; thereafter yearly the patient should submit himself to a careful treatment with iodides; and he should lead a life devoid of all strain and excess of any kind. The need of this becomes absolutely imperative if the patient present any sign of organic disease (abnormal reflexes; anomaly of the pupils; tendency to cerebral congestion).

The need for careful (anti-syphilitic) treatment of a

patient is manifest especially in signs of premature senility; notably in arterio-sclerosis. Probably, one infected with syphilis in youth, who shows hardening arteries, between the ages of thirty and forty, is a serious candidate for paresis or tabes, and should be treated accordingly, especially if specific treatment has been previously neglected.

Treatment. Usually specific treatment is regarded as useless when distinct signs of paretic dementia have appeared, and often it is regarded as harmful. In general it may be said that when dementia has become evident nothing can overcome it; and any treatment can be but palliative or directed to the arrest of progress of the disease. The possible depressive and exhausting influence of mercury is to be considered, and it should be employed only in cases early or when the patients are physically robust. Iodides should be used, if there be no contra-indication, in moderate doses for a long time with regular interruptions. Some writers consider intramuscular injections of calomel (¾ of a grain once a week for four or five months) as useful.

Aside from specific remedies the treatment must be symptomatic. The general physical functions should be most carefully watched, and especially should the alimentary tract be most carefully maintained in a normal condition. Constipation and clogging of the bowels are frequently responsible for seizures.

For the states of excitement and sleeplessness it may be necessary to employ trional, sulphonal, chloral, bromides, and opiates. Ergotine is useful in congestive states due to vasomotor paresis. Paretic seizures often yield to chloral and bromides by rectum. Often in seizures the patient can not take food or drink and would quickly die of exhaustion.

In such cases the use of regular enemas of lukewarm water may save the patient; or warm half-baths with cold water to the head may suffice to abort or shorten the attacks.

There may be various indications for tonics, especially for those reputed to build up the nervous system—glycerophosphates, lecithin, strychnia, etc.

LESSON XXVIII.

Syphilitic, Senile, and Other Insanities Due to Gross Cerebral Disease.

Syphilis, besides inducing the finer alterations of the central nervous system peculiar to paretic dementia and tabes dorsalis, frequently implicates the nervous elements in a coarser way, and the brain may thus suffer as a result of specific disease of its arteries (endarteritis, periarteritis) and of its tissue and membranes (gummatous growths, multiple and diffuse gummatous involvement). The result is irregular and multiple destruction of cerebral tissues, either directly or indirectly (thrombotic softening, softening due to pressure of gumma, etc.).

The clinical picture of nervous syphilis is distinguished by its protean character; its strange and irregular combination of symptoms; the variations of intensity of symptoms, and the variations and sudden changes of them, together with a well-marked tendency to progress from bad to worse. What is true of nervous syphilis in general is pre-eminently true of cerebral syphilis, and mental symptoms due to implication of the cortex of the brain present similar variations and irregular combinations with a marked progression toward profound dementia.

Syphilitic insanity (dementia) for this reason does not present well-defined clinical pictures as a whole, but cer-

tain distinctive features in all cases form the basis of diagnosis.

The prodromal symptoms are those of cerebral syphilis: headache (nocturnal); disturbed sleep; transitory paralyses, more or less marked, of the limbs and face, and especially of the ocular muscles (double vision, ptosis, iridoplegias).

Sooner or later there are apoplectiform and epileptiform seizures. Aphasia with right hemiplegia is frequent. Epileptic attacks may be general or partial (Jacksonian) and engender mental epileptoid states (see Epileptic Insanity). The disturbances of speech may take the form of dysphrasia and dysarthria, shown in misuse of words and disturbances of articulation—which differ from the stumbling on syllables so characteristic of paretic dementia.

All cases of syphilitic insanity present the symptoms of loss of mind and marked defects of memory. On this basis there may be various and changing symptomatic mental pictures: hallucinatory delirium, hypochondriac melancholia, persecutory delusions, etc.—in all of which will be seen the basic mental loss. In some cases the mental symptoms are exactly like those of a case of the exclusively demented form of paretic dementia. This identity of symptoms is explained by the diffuse and progressive destruction of the cortex in both diseases; the symptoms do not depend so much upon the pathologic process as upon the parts affected.

The mental symptoms may begin suddenly or gradually develop. The *course* and *duration* are extremely variable. The fact that when syphilis has once invaded the nervous system it is prone to continue the work of destruction, makes the *prognosis doubtful,* notwithstanding the temporary satisfactory results frequently obtained by energetic treatment.

THE TERMINATIONS may be chronic dementia, death, or relative recovery. It is extremely rare to obtain, even in the most favorable case, a recovery that does not leave something to be desired—some dementia and abnormal lack of mental energy remain. "Recovery" is usually an arrest of progress of the disease with some permanent mental and physical defect more or less pronounced.

THE TREATMENT should be that for the psychoses in general, together with the most energetic mixed treatment for syphilis (mercury and iodides). It is in these cases that large doses of mercurial ointment (45 gr.) and iodides (150 gr.) often give such brilliant and immediate results.

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SENILE INSANITY is essentially a form of dementia due to senile cortical atrophy which forms part of the general atrophic involution of the organism as a whole. The age at which these changes make their appearance varies with individuals; years are only a relative measure of age after maturity has been reached.

The fundamental characteristic of the insanity of senility is the *loss of mind* (*dementia*), which, in its milder degrees, is shown in the diminution of energy, the dulling of mental acuity, and the narrowing of the mental horizon of interests to those more or less immediately personal, and which make themselves clear in increasing egotism, with all that arises from it in those that have once had broad interests in life. As we grow older, life must narrow before us, because we see its inevitable limit rapidly approaching, and the natural psychologic result is increasing preoccupation with personal (egotistic) interests to the more or less complete exclusion of the broader ideas, feelings, and impulses of years of activity and larger hopes. These milder indications of the

natural changes of age find their exaggerated parallels in senile dementia.

These alterations of mentality, if progressive, finally show in very marked mental symptoms, some of which are made more pronounced by defects of the senses of sight and hearing. The aged are suspicious and exacting of others because of the want of clear understanding of what takes place around them. With the lessening of the acuity of the senses, the aged are more and more limited to the mental store remaining from experience, which at the same time grows narrower and narrower. With mental activities subjectively and objectively limited, the primary instincts of self-defense and self-assertion become the determining factors in thought and conduct: the motives of the acts of others are suspected; subjective impulsions are obeyed without reflection or control. Thus in its extreme degree senile dementia may resemble delirium (confusion), because of the narrowing of consciousness to what remains of the acquired mental store, with the consequent loss of immediate relation to actuality.

On the basis of disappearing acquired abstract and impersonal notions and the limitation or suspension of acquirement of new ideas, are developed the psychologic details of senile dementia: weak memory of late or latest events; enfeeblement of attention, due to equalization of value of mental images that come into consciousness. The delirium of aged persons that have undergone an operation for cataract and are kept in darkness, is a most striking temporary prototype of the symptoms of pronounced senile dementia and confusion.

The mental symptoms of senile dementia, aside from those of quantitative loss of mind, are expressed in quali-

tative anomalies of the intellect, the feelings, and of conduct, which are essentially elementary mental symptoms.

Hallucinations and illusions of one or more of the senses, especially of sight and hearing, are almost constant. *Delusions* of a melancholic or hypochondriac type are common: the patient has sinned or is to die of starvation or go to the poor-house. Ideas of persecution arise upon the basis of suspicion, and those of an expansive kind are possible.

The acts of the senile dement are the consequence of the general mental enfeeblement, and therefore often guided by instinctive impulses that are normally restrained by ideas resulting from education and moral training. Of senile criminal acts the most important are those of a sexual kind, for the victim of senile sexual attack is usually an innocent child substituted for an adult because of innocence or because of timorous consciousness of sexual incapacity in the offender. Sexual inclination in the aged is unfortunately not always extinguished with physical virility, and thus arises the possibility of abuse of children and more rarely sexual attacks directed towards relatives or adults. Such criminal acts are in some cases the first and most striking symptoms of senile dementia, and as such are a prejudice to immediate recognition of the basic cause, at least in the popular mind. The secrecy of such immoral conduct should not prejudice judgment of its cause in the aged. Open or secret appropriation of the property of others may be the striking act that reveals the demented state of an aged person.

Intercurrent and symptomatic states of active mental disturbance are common and to be judged on the basis of the underlying dementia with loss of memory for recent events.

The readiness with which the senile dement can be influenced by others, to his own or his family's detriment, is

often a cause of legal proceedings which raise some of the most delicate questions of mental soundness and unsoundness the alienist is called upon to answer.

THE DIAGNOSIS of senile dementia must take into consideration the fact that the aged may present any of the simple psychoses in a curable form. The decisive points are the history of the gradual development of the dementia with the peculiar disturbance of attention resulting in weakness of memory for immediate past events. The *prognosis* is unfavorable.

THE TREATMENT must be purely symptomatic. Morphine and opium find indications in the restlessness of these patients, often marked at night in contrast with drowsiness during the day. In the later stages they may require care like that given an infant. When adequate means of care at home are wanting, senile dements should be sent to an asylum.

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FOCAL CEREBRAL DISEASE is frequently the immediate cause of insanity. Among the more important of organic lesions of this nature are hemorrhage, thrombosis, embolism (softening), and intra-cranial tumors.

The possible mental pictures arising in such cases are numerous, but all are more or less characterized by dementia, which in some cases is much like senile dementia.

THE DIAGNOSIS and PROGNOSIS depend upon the underlying or accompanying gross cerebral disease.

THE TREATMENT of these forms of insanity must be symptomatic and modified in relation to the organic condition.