to the disease are best studied by dividing it into the following classes:

CHARACTERISTIC FORMS.

Mild and Simple.	*Severe and Complicated.*
Hebephrenia.	Stupor (simple and katatonic).

ATYPICAL FORMS.

Pseudo-paranoia.	Confusion.
Mania (acute and choreic).	Melancholia.
Mixed States.	

Either of these states may be the predominating feature of an episodical syndrome of dementia præcox.

PREMONITORY SYMPTOMS OF DEMENTIA PRÆCOX.—As the early indications of the disease are practically the same whatever form it may afterward assume, and as their analysis is of importance as showing its true nature, they will be given in detail. The disease is of gradual onset as a rule, but the prodromal symptoms rarely extend over more than a year. The attack is reported to have come on suddenly in but twenty-two out of seventy-seven cases at the Taunton Hospital for the Insane and at "Bournewood." The primary manifestation is mild mental enfeeblement. Power of attention, the root of mental strength, is first affected. Kræpelin considers that at this stage the attention is intact, but that the patient makes no use of it, as he has no desire to occupy himself with anything. In all of our cases, however, in which intimate knowledge of the earliest manifestations was attainable, lapse in the *power* of attention has invariably preceded loss of desire to occupy the mind. An ambitious student complains: "I cannot any longer wield my mind, which has become my master instead of I being master of it." "I feel no exuberance as before," "Everything is a dead weight." "The feeling clings to me and I cannot *fight it off*." A bright lad in a preparatory school grows despondent at finding himself becoming "dull," "stupid," and "weak," and begs to be helped, as his utmost endeavors to go on have failed. The girl in this situation feels for the first time that "she must struggle to be like other girls." The patient also becomes more easily fatigued physically than before. With increasing mental failure the fruitless efforts are soon abandoned, the mind becomes more inactive, forgetfulness, despondency, and indolence replacing alertness, ambition, and energy. He "wants to be let alone," becomes listless, apathetic, and careless, gradually slipping into a dulled condition of mind. Another becomes mortified, sad, hyperconscientious, and self-reproachful. Avoidance of others follows and paves the way for suspicion of those about him, the starting-point it may be of future hallucinations, delusions, and overt acts. Suicidal thoughts may now appear. Patients of another temperament when no longer able to meet even the minor demands of life and physically tired are easily upset and very irritable. They become unexpectedly fault-finding and angry over trifling matters. Abulic states are common and are shown in marked indecision and constant demand for reassurance regarding the plainest matters of duty. The train of thought naturally becomes interrupted early and may even show signs of the approaching confusion and stereotyped movements of the next and active stage of the disease. Lapse in judgment is shown in unnatural prejudices, sudden and needless alarm at ordinary occurrences, foolish conduct, etc. The memory is unimpaired, although sometimes masked by the prevailing absorption and apathy. Self-control is early involved, diminishing until in the active stages it may be, in extreme cases, entirely lost. The conduct varies with the nature of the symptoms. Sudden and unexpected acts are common, such as exhausting walks with no object after a long period of idleness, destruction of minor belongings, etc. Sudden transitions of mood and the lack of depth of the patient's depression or anger, which are characteristic features of the disease throughout its entire course, are early manifestations, as are also inconsequential speech and aimless effort. The general appearance of the patient is that of apathy or mild depression, except at times of sudden animation. Lack of energy also is constant, except during spasmodic outbursts of misdirected activity. Although such patients owing to irregular ways of living sleep more in the daytime, insomnia is developed early. The appetite is capricious. Headache is as frequent, and, as Mairet thinks, a highly important symptom at this juncture. It is sometimes severe, persistent, and protracted pain, but more often in our experience a disagreeable vague sensation as if the head were "empty" or "filled with cotton wool." Nightmare appears to be somewhat more common than in the older insane. A generally weakened, relaxed, poorly nourished bodily condition is common and is shown in loss of weight, pallor, dilated pupils, vaso-motor disturbances, low temperature, and weak pulse. Menstrual irregularities are rather common. In not a few cases the group of premonitory symptoms bears a deceptive resemblance to neurasthenia proper, owing to the predominance, for a long period, of purely nervous and bodily debility. Careful inquiry will often reveal the history of a transient attack of "nervous prostration," a peculiar "seizure," or spasmodic attack some time before, in which mental phenomena were prominent. The apathetic condition of the preliminary stage often passes for depression. When the onset is more or less sudden these minuter changes are masked by the severer symptoms, and the mental fatigue and apathy are less prominent in the history as forerunners, but special inquiry for these indications usually brings them to light.

In spite of this array of symptoms these patients not infrequently show for a greater part of the time a degree of sensible conduct and natural enjoyment of things which tends to conceal their true condition.

MILD AND SIMPLE FORM.—*Hebephrenia* represents the mild and simple form of the disease and comprises those states which are characterized from the very outset to the end of the attack by simple dementia. This takes the form of mental enfeeblement in which alternate depression and excitement appear, but are never very marked. This variety may properly be said to bear the same relation to dementia præcox as a whole that the uniformly demented or uncomplicated form of dementia paralytica (general paresis) does to that disease. A study of hebephrenia proper is the best guide to an accurate knowledge of the elements of dementia præcox. It is a simple, gradual weakening of the intellect, and in its main features is fairly well defined, so much so that several authorities have regarded it as a disease in itself.

Active Stage.—In this group of cases there is rarely any decided or abrupt transition from the above-described initial symptoms to the active stage, which in a general way may be said to be reached when the patient's self-neglect, erratic conduct, impulses, suicidal tendencies, etc., have reached the point of unmistakable irresponsibility and call for medical interference and perhaps hospital care. Sometimes the advent of this stage is marked by a light and transient attack of excitement or by the appearance for the first time of active delusions and illusions. The semi-depressed condition now becomes more pronounced. The patient accuses himself of wrong-doing, believes that he is worthless, is bringing trouble on others, etc., and makes more or less determined attempts at suicide, wanders off, giving the family great anxiety, or refuses to leave his room at all. The feeling of sadness, however, unlike melancholia in older patients, is very superficial and readily changes to another mood for no apparent reason. A young man, for example, while in the midst of bemoaning his evil life suddenly stops, takes up his guitar and sings a comic song in a mechanical, impassive manner. A girl with placid and even smiling expression tells of her terror from the smell of burning bodies beneath her bed. A sudden access of gayety with loud laughter and foolish behavior will often interrupt the melancholy. So, too, anger, however frequent, is soon over—perhaps dispelled by a sudden change of mood. The greatest contrasts in the mental states are to be expected in this disorder. The psychomotor sphere is equally involved. The patient abandons himself to all kinds of impulses and aimless acts which often have the appearance of being done

from mischief or malice. In writing and speaking they are sometimes affected, grandiloquent, declamatory. They may write high-flown sentimental and disconnected doggerel, or draw absurd symbolic pictures. Great vanity or absurdly dictatorial manners are not uncommon. One is impressed with the shallowness and unreality of the sentiments of these patients. Their ideas in general are childish. They often realize that they are ill but they have a wrong idea of their condition. Memory, consciousness, orientation, and order of thought are usually well retained except on occasions of excitement, when there are lack of clearness and confusion. The understanding is greatly impaired, as is shown in unnatural opinions on ordinary matters, in actual delusions, in difficulty in grasping new ideas, and, as the disease progresses, even simple ones, in inability to follow plain explanations, etc. Emotionally they are more or less apathetic, listless, and dull for a good part of the time, a condition which may occasionally take on a semistuporous phase. Sometimes excitement is quite marked, but it is transient and actual violence in this state is rare. Extreme and very sudden impulses are common. Hallucinations are frequent at first and shifting delusions of a depressive kind prevail. In fact, the predominating feature for a time may be simply the reiteration of absurd delusions of culpability, etc., with perhaps little expression of concern. The more apathetic rarely take the initiative in, or apply themselves to, anything, but sit idly about, and, if work be given them, soon abandon it. They will turn the leaves of a book without reading it, etc. They show no spontaneity in conversation, and their answers are perfunctory. Their movements are often slow and mechanical. The expression, usually more or less vacant in such cases, may be broken by a weak smile or meaningless laughter. If these patients leave the hospital, they are apt to be unfit for duties of any kind. They shun others and take little or no interest in anything, but are able to live at home in the absence of harmful impulses or habits. Many of the poorer class become tramps or beggars.

SEVERE AND COMPLICATED FORMS.—*Stupor.*—In the preceding variety the prevailing mental state was chiefly apathy or light hebetude. We have now to deal with stupor, a more extreme and acute state in the "dementing" process: a suspension, in varying degrees, of mental activity. Here the consciousness is more deeply involved and the symptoms are more pronounced, so much so as to include physical as well as mental disorder. Its protracted nature and accompanying phenomena render it characteristic, but the stupor of general paresis and of epilepsy is very similar to it in other respects. Stupor seldom comes on suddenly, although occasional cases are reported to have immediately followed extreme fright, profuse hemorrhages, etc. It may, however, be a comparatively early symptom. It is usually preceded by certain of the prodromal symptoms above described as common to all forms of dementia. Depression and general indifference may simply deepen into stupor. Hallucinations or illusions with fear, or intense transient excitement and violence may precede it. Hysterical manifestations may also appear before or with the excitement. The circulation is often poor, the appetite impaired, and sometimes the sensation is diminished. After a few days or weeks in such cases, in others after months, stupor sets in, growing gradually deeper, while the hallucinations slowly disappear. In cases of profound stupor, either complete relaxation or rigidity of the muscles may be present. The patient becomes motionless and so remains, except when interfered with by others, and in exactly the same attitude for days, weeks, or even months. He is often found standing rigid with the head flexed upon the chest, the eyes closed or staring vacantly without winking. Flies may crawl over his face unheeded. His evacuations are passed unnoticed wherever he may be. He refuses food, answers no questions, and often cannot be aroused by a pin-prick. That he feels and even hears, however, is sometimes evidenced by his turning his head to the questioner. The respirations are barely noticeable, the heart sounds clear but weak, and the pulse is irritable, small and soft. The extremities are cold and perhaps œdematous. The temperature is below normal, the skin dry and harsh, the body thin, and the face cadaverous. Menstruation is abolished. The stupor may be suddenly and unexpectedly interrupted at any time by a transient attack of excitement lasting a few minutes or an hour, after which the stupor returns. So, also, equally brief intervals of apparent rationality may occur and disappear during the profoundest stupor. Cases of intermittent mental stupor are reported by Whitwell and Noble, one in which lucid periods of twelve hours alternated every thirty hours with typical stupor, for a year and a half; another in which there was a fairly regular alternation of these states every day for at least five months. Every degree of stupor may be present in a case of dementia præcox, from the well-developed type just described to a milder apathetic state approximating that of hebephrenia.

One of the most characteristic symptoms is a peculiar state of muscular rigidity or spasm, generally called katatonia (*κατα*, denoting intensity; *τονος*, tension). The association of this striking motor condition with various alternating psychical symptoms—melancholia, mania, stupor, confusion, and finally dementia, one or more of which may be absent—led Kahlbaum, in 1874, to regard katatonia as a disease entity, naming it from this symptom which he believed to be pathognomonic. Until recently the soundness of this view, which has much to commend it, has been a much vexed question, but it is now practically rejected by the modern writers. Kraepelin classes it as a form of dementia præcox. Our own observation, which is in accord with Chaslin, Séglas, Tuke, and Goodell, inclines us to go even farther and, regarding it as a symptom, to subordinate it to the more comprehensive form, stupor, of which it is a direct outgrowth.* Stupor, it will be recalled, frequently runs its course without katatonic symptoms, while the katatonia of dementia præcox seldom originates independently of stupor in some form. It rarely accompanies excitement except when the latter is associated with stupor—a not uncommon combination.† Katatonia does not develop *pari passu* with stupor in a given case, but is most marked when the stupor has become profound, and is an indication of its intensity. In short, when the acute dementia becomes extreme, motor inhibition with muscular rigidity may follow. In well-developed katatonia all the muscles seem strained to the utmost, and this state of persistent tension and rigidity enables the patient to maintain even unnatural and difficult positions and postures for a great length of time, perhaps for months. Occasionally, for want of proper treatment, ankylosis results.

The katatonia is intensified by any attempt at interference with the attitude or position of the patient, who will often make stubborn and it may be insurmountable resistance. This well-known phenomenon has been accurately named negativism on account of the patient's determined opposition to natural direction and personal promptings. The efforts that are necessary to deal properly with these patients are extraordinary in consequence of their dogged resistance to all attempts to help them. It is sometimes possible to accomplish the end in view by appearing forcibly to prevent the patient from doing what we desire. Refusal of food is a prominent example of this tendency, and the same difficulty in forcibly feeding the patient is regularly encountered with each attempt. There is a like resistance to the functions of defecation and micturition. The saliva also is retained for a long time in the mouth, the same inhibitory motor condition preventing the patient from swallowing it.

Cataleptic conditions—by which is meant states of stupor associated with suggestibility and often a waxen flexibility of the limbs on passive motion, which is in strong contrast to the muscular rigidity of katatonia—are not uncommon. The mental attitude is equally opposed to that of katatonia, being, in many cases, manifested in increased susceptibility to external impressions.

* See also McPherson: "Mental Affections," 1899, pp. 234, 236.
† See Kraepelin: Am. Jour. Ins., lvii., No. 3, pp. 464, 467, 468.

The patient is sometimes as obedient and pliable as the katatonic patient is contrary and resistive. Sometimes the tetanic rigidity of katatonia and the cataleptic flexibility are associated, the katatonic spasm developing first,—a combination difficult to understand on physiological grounds (Kirchhoff). Certain cataleptic patients are very imitative. They spend much time in mimicking the motions of others and will continue the same movement automatically for hours.

The mental state in stupor may represent almost every degree of intellectual inactivity, and in the profoundest states thought seems practically suspended. To some extent the patient is influenced by powerful delusions, fears, or hallucinations, to remain motionless, etc., as is evidenced by questioning the patient on recovery, but more often the mind is found to have been more or less of a blank, as the patient has little or no remembrance of what his feelings or thoughts had been during the stupor and can give no reason for his behavior at that time.

The Atypical Forms.—The other varieties of mental disturbance occurring in the course of dementia præcox are not so characteristic of the disease as are those just described, and, as they are not confined to any time of life, may in a sense be called the atypical forms of the disease. As we shall show in speaking of the diagnosis of dementia præcox and elsewhere, these forms are here symptomatic and only superficially like the same forms later in life where they are consistent mental states which have been regarded as psychoses. They are melancholia, mania, confusion, and pseudo-paranoia.

Melancholia.—The melancholia of dementia præcox very frequently ushers in the active symptoms of the disease, which may become either deeper melancholia, a maniacal episode, or a protracted stuporous condition. Simple apathetic states occurring in the prodromal stage and later are, we may be permitted to repeat, often mistaken for depression. When melancholia is the prevailing state it is apt to take the form of self-accusation, delusions of worthlessness and culpability, with illusions and hallucinations which may be very pronounced. The absurdity of the delusions is a marked feature in some cases; a patient believes, for example, that when taking food she is eating people or swallowing diamonds, that there are people concealed in her skirts, etc. Occasionally the delusions are powerful and lead to attempts at suicide, homicides, and escapes.

As has been shown in describing the hebephrenic form, the feelings are seldom deep and the disproportion between the intellectual disturbance and the emotional condition is often striking. The consistent, constant, and pronounced remorse, self-disgust and despair or continual terror, desperation and agitation which nothing can mitigate, of the mature melancholiac, is not often seen in the adolescent patient. The depression and delusions are often much in the background, and while they color and influence the attitude and behavior are apt to come into especial prominence only occasionally and as startling and frequent impulses or sudden determinations to follow peculiar lines of conduct—to refuse food, for example. These patients are often appreciative of their surroundings in the acutest stage of their depression and may be quite readily diverted. The underlying mental weakness at this time is shown in nonsensical ideas, a childish manner, apathetic states, and fatigue of mind following slight application or unexpected events, such as the visit of a relative, etc.

Mania.—It is usually after a transient period of apathy, depression, or peculiar conduct that the excitement of dementia præcox very suddenly breaks out, and in extreme cases is for a time intense and furious, continuing so, it may be, for a few days or even a week or two, to be succeeded by a dull apathetic state, and to return again with perhaps less intensity. This alternation continues irregularly throughout the greater part of the attack in a certain number of cases, the excitement becoming less and less prominent. As a rule the maniacal stage consists of a rapid series of impulsive acts of various kinds. The violence is often of a senseless nature; the delusional state is marked and hallucinations are common. The patient will often stop in the middle of his excitement to answer questions and express appreciation of his condition or surroundings. Stereotyped movements are common; the most violent opisthotonos was maintained at different times during excitement, for half an hour or more, by two of the writer's patients, in one of whom it alternated with extreme emprosthotonos. Isolated imperative acts in great variety, usually sudden, extreme and momentary violence or strange actions in endless repetition, attitudinizing, etc., often interrupt the quieter or replace the excited condition. The maniacal form of dementia præcox is not very common. Verbigeration, in which words or meaningless sentences are repeated in the same tone for hours or days together, is thought to be a common feature of the disease, but the writer has only occasionally seen this symptom in dementia præcox. Goodell, in a three years' study of these cases, had not met with this so-called characteristic symptom as described by Kahlbaum and Neisser, and French writers deny that it is characteristic of any affection whatever.

Mania is associated in rare cases with chorea major, making a striking disease—*chorea insaniens*—which we should class among the characteristic forms of dementia præcox were it not that the accompanying mania is the predominating condition, of which the chorea usually appears to be a motor complication. These patients often have previously manifested one or more of the physical ailments common to this period, viz., anæmia, scanty or irregular menstruation, palpitations, cephalalgia, etc., and are very frequently adolescent primiparæ. It has long been recognized that chorea in some form is almost invariably associated with mental impairment, varying from apathy, irritability, etc., to acute mania or stupor. It is equally true that chorea is in its most developed state in youth and that the associated mental symptoms are most marked then, the severe, dangerous, and fatal cases occurring at this time. It is also noticeable that the choreic and mental symptoms appear and subside at the same time, a fact which suggests the close alliance of the two disorders. As the acute forms of both do not appear together at any other time of life, choreic insanity, or maniacal chorea, plainly belongs exclusively to adolescent insanity. In the choreic form of dementia præcox heredity seems to play a somewhat more important part than in the other varieties. The onset is generally rather abrupt, the choreic and mental symptoms usually appearing simultaneously, but either may precede. Delusions or hallucinations now appear which may later dominate the scene. Insomnia and nightmare are common. Increased temperature is not infrequent in this stage. The chorea, whether general or localized, reaches its height early in the attack, which is usually not the case with the mental state. The choreic movements also are almost invariably increased during the mania. When at its height the patient writhes incessantly, plunges about the bed, tosses the arms, clenches the fists, contorts the face, etc. The knuckles and elbows become abraded unless protected from the wall or bedstead. The maniacal condition is the same as a rule as that just described as the ordinary maniacal form of dementia præcox. The duration of chorea insaniens is usually several months. It is often fatal, and is believed by some investigators to be due to sepsis or a toxin.

Confusion is a frequent condition and the logical expression of the mental process in dementia præcox, a disorder which presents so many and frequent contrasts in moods and even in its forms of disturbance. Moreover, exhaustion, which is the basis of confusional insanity, is also, as will be shown, a most common cause of dementia præcox, and we should therefore naturally look for similar clinical manifestations in both. In our opinion many an attack which passes for simple confusional hallucinatory insanity of the primary idiopathic type in adolescence is the starting-point of dementia præcox. In fact, Chaslin's classic description of confusional insanity embodies so many of the well-known symptoms of dementia præcox that the resemblance is striking. For example, he classes

together as important symptoms of confusional insanity intellectual enfeeblement, stupor, immobility, automatism, dementia, stereotyped movements, impulses, etc. According to Meynert the prevailing age in confusional insanity is between twenty and thirty. Although hallucinatory confusional insanity in its entirety is only occasionally present as a symptom-group of dementia præcox, the mental state of confusion is a prevalent and consistent feature of the disease.

Paranoid States.—Just as hebephrenic and stuporous conditions arise in the progress of this dementia, in the same manner that mild demented forms and stupor occur in dementia paralytica, so also pseudo-paranoia will appear in dementia præcox in the same way that persecutory ideas are for a period uppermost in certain cases of general paralysis. These paranoid states, which are quite common, are very different from true paranoia, as will be shown when we come to consider the diagnosis. They are so designated simply because the predominating ideas and attitude are those of persecution. These beliefs are usually not the outgrowth of a naturally suspicious tendency, but are preceded by certain of the usual prodromes of the disease above described as common to all forms, chiefly insomnia, headache, cerebral fatigue, loss of interest, etc. There is also much disquietude, suspicion, and irritability, and the active stage is apt to begin with excitement or pronounced melancholia followed by hallucinations and delusions, which, though absurd, inconsistent, and unsystematized, are persecutory in their nature. The delusions are often attended with ideas of grandeur and importance. A young man, now a dement, would dwell on long-past family misunderstandings as present grievances which demanded redress. Relatives "insulted" him and made derisive motions to him. He ordered people out of the house, grew excited, and talked loudly in discussion, was overbearing, and fell into rages in which he proclaimed his importance, forbade speaking of the President in his presence, etc., etc. These patients are very vain and self-conscious and demand special consideration. Their understanding is much affected, and they cannot long apply themselves to work or reading. Impulsive acts are common. In a variable length of time they show the underlying state in increasing apathy, and in a few years the disease ends in a confused dementia. Remissions occasionally occur, as with the other forms of dementia præcox, but they are usually short. Paranoid conditions may appear for the first time late in the second attack or after its acutest stage has passed. Hallucinations of hearing and persecutory ideas, developing late in this way, may terminate in what is loosely termed secondary paranoia, a common condition.

Mixed States.—It has been already made apparent that none of the above symptom groups are always consistent sets of manifestations except as they represent modes of expression of one underlying condition, dementia. A single syndrome is merely a predominating feature, which often may hold the stage only for a time, to be interrupted or entirely replaced by an opposite condition. Thus it happens that stupor will sometimes dominate a mild hebephrenic state for the time, and confusion, katatonia, and excitement be intermingled in the same attack, etc.

Miscellaneous Conditions.—Like dementia paralytica, the mental manifestations of dementia præcox are Protean. Besides the principal conditions just described, hysteria is a common element and epileptiform attacks and delirious states are occasional complicating features of the disease. Aboulia and hypochondria are sometimes present when bad heredity is a prominent etiological factor.

The Disease-Process.—It is only by keeping in mind that gradual intellectual enfeeblement is the fundamental condition of dementia præcox from first to last, growing more and more marked with each successive "attack," and that even in the remissions it is in typical cases more or less apparent, that the true nature of the disease can be understood. Any of the groups just described may predominate in one attack and in the next be absent, greatly modified, or united with the symptoms of another group, but the mental enfeeblement is the one constant feature which is at once the source and common bond of union of all the manifestations. Some of these syndromes are moreover striking and, relatively to mental states in mature life, unusual. This is because the underlying juvenile dementia has imprinted on them a peculiar stamp, making them odd, shifting, and contradictory. The intensity and depth of these manifestations, as well as their irregular character, so far conceal the essential dementia in some cases that it is apt to be lost sight of and these accessory symptoms are given an undue importance. This and the fact that remissions have been taken for recoveries have led observers to mistake them for disease entities which have been given from time to time a variety of names, such as stuporous insanity, acute primary dementia, katatonia, hebephrenia, melancholia attonita, etc. Much confusion has arisen in consequence, and the real nature of the disease has been greatly obscured. They are in reality but episodes in the course of a progressive dementia, and have their counterparts, as Kraepelin indicates, in the excited, depressed, stuporous, katatonic, confused, and other states that mark the course of dementia paralytica or general paresis.

It is instructive further to develop this analogy, if we may so term it, between dementia paralytica and dementia præcox, as there are features in both diseases which show a certain clinical relationship between the two, at least so far as concerns their *purely psychical* symptoms and the process of development of the mental degeneration. Kahlbaum in his work on katatonia finds some striking points of resemblance clinically and even reports autopsies on cases of that disorder in which certain pathological changes were the same as those found in cases of general paralysis (see *Brain*, vol. xii., July to January). Kraepelin makes several allusions to clinical points of resemblance in his chapter on dementia præcox.

A Comparison of the Modes of Mental Degeneration in Dementia Paralytica and Dementia Præcox.

Dementia Paralytica.	Dementia Præcox.
Nature and Course.	
A primary *organic* dementia, an essential, general, progressive, and chronic mental enfeeblement.	A primary "*functional*" dementia, an essential, general, progressive, and chronic mental enfeeblement.
Etiology.	
An acquired disease.	Either inherited or acquired.
Mental Prodromes.	
Prolonged:—	Usually prolonged:—
A period of pseudo-neurasthenia.	A period of pseudo-neurasthenia.
Impaired attention.	Impaired attention.
Mental fatigue.	Mental fatigue.
Indifference.	Indifference—common.
Irregularity of habits.	Irregular ways of living.
Early impairment of moral sense.	No impairment of moral sense until later stage.
Memory impaired.	Memory intact.
General Mental Manifestations.	
A union of mental and physical symptoms.	Union of mental and physical symptoms in many cases.
Special Mental Manifestations.	
Protean, but chiefly—	Protean, but chiefly—
Dementia (uncomplicated).	Dementia ("hebephrenia").
Mania.	Mania.
Melancholia.	Melancholia.
Stupor.	Stupor.
Confusion.	Confusion.
Paranoid states.	Paranoid states.
Special Physical Symptoms.	
Essential, constant and profound—	Common, often profound, frequently absent—
Speech defects.	Katatonic rigidity or spasm.
Localized tremor.	Stereotyped movements.
Muscular inco-ordination.	Chorea.
Pupillary troubles.	Cataleptic "trance" states.
Troubles of sensation.	Peculiarities of gait.
Automatic movements.	Analgesia.
Convulsions.	Vaso-motor disturbances.
Spinal lesions, etc.	
Remissions.	
A prominent feature—almost invariably incomplete, usually transient, rarely protracted.	A prominent feature—generally incomplete and short—sometimes quite complete and protracted.

Dementia Paralytica.	Dementia Præcox.
Termination.	
Invariably fatal—gradual destruction of mind and vitality.	Rarely fatal—destruction or permanent impairment of mind only.

The above comparison shows plainly that in spite of the wide difference in their pathological bases the mechanism of the process of mental deterioration is practically the same in both diseases, the depth of the pathological involvement of the cortex alone explaining the difference in the ultimate results. It also makes it evident, to our mind, that dementia præcox is a transition disease between the "functional" degenerative psychoses, paranoia, manic-depressive insanity, etc., on the one hand, and the deeper-seated (because structural) form, dementia paralytica, on the other.

Etiology.—*Age.*—The profoundest influence in originating dementia præcox is the normal condition of the organism at the time of life in which the disease prevails—the period of puberty and adolescence,—of growth, development, immaturity, whose limits lie in the large majority between the ages of fourteen and twenty-five. In fact, the unmistakable cases of dementia præcox that occur later than the thirtieth year are rare. Almost all modern writers on psychiatry, even those who lay especial stress on the influence of faulty heredity, are fully alive to the great importance of this critical time of life in promoting mental disease. Kraepelin in particular, who has little to say regarding heredity as a cause of dementia præcox, thinks that in all probability we shall have to seek for the real causes of its origin in the physical and mental variations of the period of development.

There is no dividing line between puberty and adolescence so far as concerns the general formative influences which underlie physiological and pathological conditions in youth. In this article, therefore, the term adolescence alone will be used—and in its legitimate sense—to designate the entire period of development from the advent of puberty to maturity.

To appreciate the possibilities of this epoch we have only to call to mind the unusually rapid growth of the organism in every tissue, the new and powerful activity of all the functions, especially those of nutrition, in the progress toward complete development, and the stamina and often the care that are essential for properly meeting the demands of this revolutionary period. The disturbance of the heretofore tranquil nervous system by the advent of the reproductive functions is a vital change, and the proper adjustment of this part of the system to the working whole is of far-reaching importance, as the genital activities have a profound effect on the entire organism and the developing personality.

The normal mental condition is equally unsettled during adolescence, and now, if ever, should we especially fear its pathological disturbance when impressionability, instability of purpose, variation of mood, excitability, impulsiveness, ambition, independence, and intolerance are most likely to be in full play, when the affections, emotions, and newly awakened sexual feelings and passion are most keen, when reflection and judgment are immature, and, above all, when the self-control which should regulate all is itself in an imperfect stage and in danger of being unequal to its function. Nothing is more significant of the causative influence of this period than the resemblance of the clinical picture to these ordinary psychical attributes of development which are all found morbidly exaggerated in the different clinical forms of the malady.

Heredity.—That inherited predisposition to insanity is the preponderating influence in the causation of dementia præcox or its synonymous conditions is not well established, although most authors, among whom are Krafft-Ebing, Finck, Clouston, Morel, Jules Falret, Magnan, Jaffray, and Saury, hold that the disease is essentially hereditary. On the other hand, Kahlbaum, Hecker, Scholz, Marro, Daraszkiewicz, Régis, Christian, and apparently Kraepelin, consider this influence to be at most but secondary in importance. Christian, in a most searching investigation, could find but 43 in 100 cases of dementia præcox who had had insane relatives. The writer's statistics on this point comprise 23 cases of the disease in which the means of obtaining reliable family histories were exceptionally good. In 21 known cases 11 had no personal or family history of mental or nervous diseases. Dr. W. H. Miller, pathologist of the Taunton Hospital for the Insane, has kindly investigated most carefully for the writer 56 cases of dementia præcox on this point, with the result that of 39 whose family history given in detail was apparently reliable, 25 were free from such hereditary taint. Thus, in a total of 60 cases coming under the writer's notice, 36 could fairly be said to show no hereditary predisposition to insanity or nervous disease. In this connection we would refer the reader to the suggestive table in the article on General Pathology (page 36), which gives the disease heredity of normal persons. We would not belittle the influence of hereditary taint in these patients, but regard the question as one of degree, and in the scale of hereditary disease would place dementia præcox between manic-depressive insanity in which insane heredity figures very largely, and dementia paralytica which is an acquired disease without appreciable antecedent mental defect. We are also inclined to the belief that inherited lack of stamina and general vigor is at the root of the trouble, a condition that is not necessarily transmitted by insane relatives.

The evidence is even stronger that it cannot be properly classed among the insanities of degeneration. The absence of the physical and mental stigmata of degeneration in the writer's cases was general, and statistics could be multiplied would space allow to show that, as Daraszkiewicz observes, neither the frequency nor the gravity of these signs is sufficiently marked to make it possible for them to imprint a special stamp on the disease.

Another striking fact in this connection is the frequency with which the disease attacks adolescents of marked intelligence and promise—ten of the writer's twenty-two patients were so endowed, and but one was below the average young person in intelligence. A large number of patients who are subject to katatonia are schoolmasters, the sons of schoolmasters, and theologians (Kahlbaum). Christian finds the following statistics of Aschaffenburg in absolute accord with his own: 27 per cent. men and 21 per cent. women had average intelligence; 55 per cent. men and 66 per cent. women had good and even remarkable intelligence; 18 per cent. men and 13 per cent. women were below the average in intelligence, but neither idiots nor imbeciles.

Facts such as these are very instructive and tend to show conclusively that dementia præcox is very often an acquired disease so far as any psychosis can be properly so designated.

Acquired Predisposition.—Diseases of early childhood of all kinds that tend to make the system delicate are fertile soil for dementia præcox. Such are the various eruptive diseases, especially scarlet fever and measles with their sequelæ; typhoid also, acute rheumatism, diphtheria, digestive troubles, anæmia, and cranial injuries. Convulsions in infancy, chorea, and headaches if prominent in the child, betoken delicate nervous health, calling for special precautions in adolescence.

Badly directed education, moral and mental, may give a wrong turn to the child's tendencies, and thus leave him without defence against the exciting causes of mental disease when adolescence is reached.

Occasional and Exciting Causes.—The determining causes are various, but for the most part are of the nature of exhausting influences. These are the most conspicuous and powerful of the exciting causes of the disease and give great weight to the contention of Binswanger and Christian that dementia præcox belongs among the exhaustion psychoses.

Rapidly growing youths or girls—particularly of the lower classes, apprentices, clerks, train hands, stable boys, mill operatives, domestics—often succumb to the exhausting effects of hard physical labor combined with long hours, little sleep, insufficient food, and, in consequence, disorder of nutrition. Insomnia and lassitude arise and mental breakdown follows, often without the aid of any appreciable predisposition to insanity. Youthful volunteers, not inured to military discipline and the hardships and dangers of active service, also recruit the ranks of the youthful insane. Intellectual overwork, of itself rarely productive of mental disorder, causes many a delicate girl or lad to succumb to insanity when poor circumstances increase the struggle for education. Rapid and excessive growth in stature is very frequent in hebephrenics and precedes by a little the development of the psychosis. In these instances there is not sufficient alimentation provided to meet the demands of the growth of the organism *plus* excessive mental and bodily energy. Habitual masturbation and venereal excesses contribute to the exhaustion, but it should be borne in mind that masturbation is oftener a result than a cause of mental trouble, and its importance as a factor is much exaggerated by people in general and especially by the melancholiac with delusions of culpability. Typhoid and other debilitating diseases not unfrequently leave the patient in a permanently weakened mental condition, culminating in dementia præcox.

The puerperal state, with its many disturbing influences in various directions, is a prominent determining cause of the disease. Aschaffenburg finds 56 cases of dementia præcox in 118 cases of "puerperal insanity."

Other determining but less frequent causes are alcoholic excess, fright or other shock, chagrin, disappointment in love, long engagements with consequent strain on the emotions, and religious revivals. Finally, it may be impossible to find any adequate cause for the mental breakdown, a small proportion of cases occurring in the physically strong and apparently unemotional.

Sex.—No reliable data have thus far been recorded which indicate in which sex the disease is more common. This is probably owing to the differences among observers as to what cases should be included under this head. There is, therefore, no accurate knowledge as to whether or not the supposedly debilitating and other effects of menstruation and its irregularities come into play as causes. Not a few authors, Christian among them, even find the disease more prevalent in youths. The writer's statistics show 41 girls in a total of 83 adolescents so affected.

Statistics.—The number of patients admitted to Taunton Hospital for the Insane in fifteen months, 563; dementia præcox cases admitted to Taunton Hospital for the Insane in same fifteen months, 126; dementia præcox cases admitted to Taunton Hospital for the Insane in fifteen months, twenty-five years of age and under, 76; ratio of dementia præcox cases to admissions, 23 per cent.

The writer received successively at "Bournewood" 147 private patients suffering from all forms of insanity, in which out of 23 of dementia præcox 22 were under 25 years of age. More cases of this disease who are of more advanced age are reported from public institutions for want of accurate histories regarding the time of onset and the number of previous attacks. Unfortunately it is also customary at present to swell the number of cases by including those beginning in mature life, that are known as "paranoia degenerativa" (MacPherson) or "dementing paranoia," in the category of dementia præcox, which is quite a different disease from paranoia in any form.

Diagnosis.—It is of the highest importance as regards prognosis and prophylaxis to recognize dementia præcox in its incipient stage. This is no easy matter, so nearly do its early symptoms of mental and bodily weakness resemble in many cases the nervous exhaustion of true neurasthenia, which, however, is ordinarily a post-developmental disease rarely terminating in insanity. In early dementia præcox we miss the characteristic symptom-groups of neurasthenia: cerebral, digestive, genital, etc. The general hyperæsthesia, excitability, pains in limbs, back, etc., are rarely present. So also the phobias. The fatigue of mind and body on moderate exertion are common features of the two disorders, but in the psychosis the signs of mental inadequacy for work or pleasure, owing to loss of the power of sustained attention, will be found to preponderate over those of purely nervous and muscular weakness. Inquiry should always be made regarding previous transient attacks of the kind mentioned in describing the prodromal stage.

The chief difficulty in the diagnosis of dementia præcox in its active stage is to distinguish early attacks, in which excitement or depression may predominate, from manic-depressive insanity, a highly hereditary form of mental disease, which in a fair proportion of cases also makes its first appearance in adolescence. As one is a disease of active mental deterioration and the other a periodical psychosis in which the mind is sound until the last, except during the attacks which characterize it, the importance of a correct diagnosis is obvious. (See *Insanity: General Prognosis.*)

In certain cases it is extremely difficult to differentiate between the two until a second attack has occurred or until the disease, if uninterrupted, has become so prolonged that evident signs of deterioration appear. The general features of difference are, that dementia precox has a gradual onset, while the attacks of manic-depressive insanity appear suddenly as a rule, and there is an absence of ascertainable cause. The former has irregular intervals between the attacks, in which the mind usually shows increasing impairment, but in the latter rational intervals always prevail. In the one the attacks vary greatly as to intensity, frequency, and regularity; in the other they are uniformly either mania or melancholia of about the same intensity and duration, and recur with considerable regularity especially in the circular form. In dementia præcox the degree of mental deterioration is out of proportion to the degree of severity of the depression or excitement. Regarding the special mental processes of the two: when depression occurs in dementia præcox it is not so likely to be attended with psychomotor retardation; the ideas are absurd and, as has been said, there is little depth to the feeling of sadness or shame. Such patients are often easily diverted, and sudden interruptions of the prevailing mood by a lucid moment or an opposite mental state are not uncommon. The depression of manic-depressive insanity, on the contrary, is uniform, consistent, and constant, and psychomotor retardation is common. The mania of dementia præcox also shows more confusion, the movements are aimless, sudden, impulsive, occasional, and possibly stereotyped with, it may be, intervals of quiet. The mania appears as a succession of outbursts of intense excitement that are soon over, while that of manic-depressive insanity expresses itself in constant restlessness and multiform purposive movements. In the former the patient is not exhilarated as in manic-depressive insanity, but is indifferent and silly, and talks nonsensically or bursts into tears in the midst of his excitement. The admixture in one attack of any degree of stupor, true negativism, stereopy, katatonic or cataleptic conditions, marked confusion or choreic movements, stamps the case as one of dementia præcox. The diagnostic relations of these two diseases is further elaborated in section XIX. (*Manic-depressive Insanity*).

Attacks of genuine confusional insanity of the primary idiopathic variety occur most frequently in youth and should be regarded with suspicion, as they are often in reality nothing less than the first active expression of dementia præcox. The same disorder occurring in maturer patients is as a rule secondary and symptomatic, and often does not result in dementia owing to the greater resistive power to disease of the fully developed organism.

The stupor of dementia præcox, when unattended by katatonic or cataleptic conditions or by marked negativism, resembles the melancholic stupor common to older patients, which may also be present during adolescence as the initial attack of periodical or manic-depressive insanity. It differs from it chiefly in its relatively less gradual onset—in the absence of the antecedent and protracted period of melancholia with delusions which are the starting-point of melancholic stupor and which so strongly influence the patient as to lead to mental preoccupation, which finally deepens into stupor. The