are more to be expected than gross lesions. The atypical formations of the convolutions are the most striking features in my autopsies" (Berkley). Krafft-Ebing states that "the lack of coarse anatomical processes explains the fact that the disease does not advance to deterioration, or at least leaves the formal mechanism of judgment and deduction uninjured."

SYMPTOMATOLOGY.—The principal feature is the insidious evolution of a "stable system" of persecutory delusions, often requiring years. "Candidates for paranoia" early manifest abnormalities of character, as reserve, suspicion, egotism, unrestrained imagination, or instability, and are often considered "peculiar." Many present stigmata of degeneration. On this premorbid personality appear distorted perceptions, falsified impressions of the external world, exaggeration of trifles, vague suspicions, and distrust.

Delusions.—The transition to completely developed delusions is slow. Jokes, smiles, newspaper items, sermons, or plays contain hostile references. Everything seems altered; things are misplaced. Patients begin to review their past life in the light of present troubles. They may experience unpleasant bodily sensations which are correlated with their false ideas, and brood over these until their number and intensity increase, and vague suspicions of an intentional persecution become absolute certainty. People watch them, and the most innocent actions are construed into evidences of persecution.

A real wrong may form the premise of false interpretations, which contradict rational experience. Eventually the delusions become fixed and dominate the entire psychic life. Their content corresponds to the endowment, attainments, and social position of the patients. Some are controlled by witches, others possessed, molested for their religion, political influence, or high station; they are poisoned, tortured, driven from business, etc. The causes assigned are as varied as the delusions, but, whatever their nature, all are eventually combined into a perfect mosaic, which neither argument nor opposition can destroy.

With the transition from vague suspicions to "subjective analysis" (Regis) the soil is prepared for the advent of expansive ideas and a resultant change of personality, the seed germinating with an attempt at "explanation." Systematization and explanation weave events of the environment into the delusions, aided by hallucinations and retrospective falsifications of their previous life. Patients now seek to establish a cause for their persecutions. Why are they abused and tortured, their plans thwarted, their business ruined, their health and even life endangered? Are they different from others, chosen of God, of exalted lineage, destined for lofty station? Their enemies must have some object. Insignificant occurrences of earlier life are magnified and brought into logical relation to their present condition. In one patient typhoid delirium foreboded a new birth as the "Immaculate Concept." Whisperings in adjoining rooms, mysterious disguised visitors, and casual resemblances led a man to believe himself the son of Napoleon Second and to assume the name of Eagle. To some, future greatness was foreboded by events apparently trivial, but whose real importance should have been recognized at the time, when they might have assumed their proper rank and thwarted the machinations of their enemies. Patients consider themselves president, commander-in-chief, statesmen, saints, millionaires, inventors, poets, prophets, or at any rate vastly superior to their acquaintances and exalted above them.

Hallucinations.—These are always present at some time, but not always numerous or prominent. Auditory hallucinations are the most common. At first there are only indefinite noises, which are gradually resolved into distinct voices. These may be heard in one ear only, sometimes in both, and sometimes only "inwardly." The language is generally indigenous, but in cultured patients foreign or dead languages may appear. There may be one or many voices, which may or may not be recognized (God, the Virgin Mary, Christ, saints, devils, relatives, strangers, male or female, "the man with the mournful voice," etc.). The words may be denunciatory, threatening, taunting, reviling, profane, and obscene, or encouraging, consoling, and calming. People are overheard plotting all sorts of crimes and violence, even to sexual attacks, poisoning, or murder, and often give the patient no rest. Or the Almighty may cheer them with promises of final victory, boundless power and wealth, exalted station, etc. The content corresponds to the character and endowment of the individual, and the varieties are too numerous to describe. The hallucinations intensify the delusions, and both react not only to each other, but also to new interpretations of current events.

Hallucinations of general feeling, taste, smell, and sight follow auditory hallucinations in order of frequency. Patients may express all sorts of perverted, unpleasant, and painful sensations, from "electricity, magnetism, vibrations, acid sprays, bullets, knives, poisonous powders, etc." Taste may be perverted; there is poison in the food, arsenic in the coffee. Some paranoiacs always prepare their own food, and will not drink except from a common supply. Others smell poisonous or noxious vapors, chloroform, fæcal odors. The rarity of visual hallucinations is fortunate, as it diminishes the probability of assaults. In a few cases innumerable hallucinations may persist for many years. One of my patients, a refined and cultivated woman, has been troubled for twenty-five years by auditory and olfactory hallucinations, without perceptible deterioration.

Train of Thought.—This is well ordered, and educated patients in particular display great acumen in their arguments, appeals for redress, statements, and letters. Their premises may be real or imaginary, but in either case the resultant deductions are perfectly coherent, although a morbid transformation of constantly surging percepts and concepts essentially influences their elaboration. What Professor Dodge, of Wesleyan, calls "the interplay of present with past experience" is never abolished, and Dr. Charles W. Page states that "the evidences of the senses are sifted and scanned, but, as the result of some original distortion of mental power, the conclusions drawn therefrom are abnormal. Consequently the system of experience which is built up is in harmony only with the vicious constitutional obliquity of the paranoiac, who will note discrepancies in his statements, and yet be entirely satisfied with fabricated explanations, which convince none but the author." In other words, the progression of ideas is logical, but the standpoints are displaced, the ethical sense is defective, patients see no incongruity between actual and assumed facts, and their delusions persist though their empirical supports collapse. "With all their misconceptions and misconstructions, paranoiacs retain for many years the power of thinking logically and clearly upon subjects other than those which touch their own false impressions" (Berkley).

Judgment shows considerable weakness, since it is biassed by the delusions, and there is marked inaccessibility to arguments. With the emergence of expansive ideas false premises constantly arise which cannot be criticised or corrected, but are accepted and utilized indiscriminately. Perception is usually keen, but often distorted; orientation is always normal, and consciousness clear. Attention is largely directed to matters concerning the ego, and often wanders from matters outside the delusions. Paranoiacs have no genuine insight into their disease, but may present numerous hypochondriacal complaints for which they seek treatment, and which they defend with great ingenuity. They display a monstrous overestimation of self and an exaggerated self-consciousness, as well as a lively feeling of independence.

Memory is good, except for false interpretations of past events which fortify their delusions (retrospective falsifications of memory). At times patients are under a vehement emotional stress, but show no independent emotional disturbances. They know well how to control themselves, and often dissimulate their apprehensions. At first they are despondent, later shy, morose, and irritable, then fearful, and finally angry and vengeful, although a few are resigned or even cheerful. Ultimately most are apt to become consequential, intolerant, or haughty. Many show a remarkable indifference in describing their criminal acts, whose nature and consequences they fully recognize.

Context.—This may be so well-ordered that for a long time no suspicion of insanity is entertained. The early seclusiveness of paranoiacs, their suspicions, peculiarities of dress and manner, are regarded as only "eccentricities," even when they begin to complain of abuses. This is partly due to their keen reasoning, and partly to their plausible interpretations. A teacher engaged in controversies with scholars, parents, and committees for fifteen years before her disease was recognized. An excellent artisan left place after place in various towns because he could get no redress for his "wrongs." During this time he was imprisoned several times for assaults.

One patient airs his grievances in the press; another frequently appeals to the authorities for protection; others write to dignitaries, politicians, actresses, and so on, before their sanity is questioned. One woman kept a record of several changes of residence for two years prior to her admission to the hospital, "to escape operations performed on her at night." Many adopt disguises for self-protection, one patient wearing a "Buffalo Bill wig." But disguises or removals give no permanent security. Wherever they go—on land or sea, even "to the uttermost parts of the earth,"—they cannot elude their enemies. If they should slay some, others will take their places; their troubles end only at death.

With the advent of expansive ideas patients may apply for important offices, propose marriage to exalted personages, write books, promote inventions, etc. They neglect business and family, alienate friends, and become callous to all but their own concerns. Some, however, are capable of varied productive work for years, although their activity is often purely mechanical. Everything centres in the ego. They will not, indeed cannot, take advice; meet all objections with an incredulous, superior air, and their convictions remain unshaken. When finally they succeed in an "explanation" they become very dangerous to the community, since they are almost sure to attempt a murderous assault. Since legal redress is impossible they take the law into their own hands. A paranoiac shot at a milkman because "he had poisoned his cattle and bewitched his sister." Another nearly killed an innocent man whom he deemed a secret agent of a hostile government. Presidents, kings, bankers, scientists, physicians, husbands, wives, children, acquaintances, or a casual passer are numbered among the victims of this dangerous class. Often, indeed, the first revelation of paranoia comes from an homicidal attack.

When the disease is legally as well as clinically recognized and patients are committed to a hospital, they may at first conceal their delusions, sometimes for a long time, but sooner or later they "are discovered by their enemies," and finally they may regard the physicians, attendants, or even fellow-patients as "accomplices." Sometimes they bear their "imprisonment" with a certain dignity, and again consider it the culmination of their troubles. As a rule they keep to their rooms and form no associations with others. Their pockets are often stuffed with documents substantiating their claims, copies of legal records, memoranda, and bulky letters. Their correspondence is usually voluminous. Residence in a hospital does not render them less dangerous, and they are always liable to make unexpected and treacherous attacks, especially during exacerbations. More than one physician or attendant has lost his life through careless disregard of this propensity.

COURSE.—The course of paranoia, when fully established, is progressive and prolonged throughout life. Several stages have been described, to which there is no objection if we bear in mind that there are many variations from the type, that the boundaries are not sharp, and the transitions are often imperceptible.

The *typical* course is as follows: On a defective constitutional basis, evidenced in childhood, youth, or even up to the period of involution by various "peculiarities" already described, sooner or later there arise vague doubts, suspicions, fears, erroneous interpretations, or broodings over matters, often trivial, which a healthy mind would overlook or soon dismiss. Hypochondriacal complaints are apt to occur. Add to these a certain amount of introspection, and we may fittingly call the whole the stage of incubation. This may and often does last for months or even years, and during its continuance patients are never supposed to be more than eccentric or "cranky," unless they come under the observation of a trained physician.

Having gradually passed the border-line of sanity, paranoiacs enter on the second stage—that of delusions and hallucinations. Here the doubts and suspicions are compacted into a delusional structure, which gradually acquires symmetry—one false idea fitting into or leading to another—until a stable system of persecutory delusions is evolved. This is aided by the hallucinations, which are of central origin, are largely auditory (first vague noises, then voices), and increasingly torment the patients. The character of the delusions and hallucinations has already been described.

The third stage may be styled that of "delusional explanation and subjective analysis," with either exaltation or change of personality. While heretofore paranoiacs have partially analyzed and arranged their delusions, perhaps instinctively, they now give them a more complete and logical interpretation. They require a reason for their persecutions, which are so numerous and constant that they must be different from ordinary individuals. They review their whole past, and discover in many occurrences indications that should long ago have convinced them that they were set apart from and superior to their fellows. Their mental ability was greater, their morals were more lofty, their religion was purer, their productive capacity was larger; they had often received special attentions and positions; they recall mysterious or significant visitors; others' trials were due to ordinary causes—theirs to special causes. These retrospective falsifications may be confirmed by the voices, which may now be consoling or prophetic. The question arises: Am I persecuted because I am superior, or am I exalted on account of my persecutions? Whatever the answer, by an ingenious train of reasoning the past and present, delusions and hallucinations, persecutions and exaltation—in short, everything assists in establishing their new, or rather "rightful," personality. The previous intense mental stress is now resolved into a calm assurance, and the "world saviour," the "chosen one," the "Immaculate Concept," the "prophet, priest, or king," the president, statesman, scientist, poet, and so on, appear in their true light and demand recognition. The seeming equability of the patients does not prevent them from forming plans ruthlessly to secure and maintain their "rights," but rather favors them, and they now are even more dangerous than in the second stage. While less obtrusive, they are more treacherous.

The fourth stage is called by Berkley "the stage of quietude, in which a degree of weak-mindedness is apparent on close examination, but in which there is nothing approaching dementia except in a minor number of instances." These latter cases the writer would include under the head of paranoid dementia. Impressions from the external world often fail to reach the patients, whose attention is directed exclusively to their own concerns; or, reaching them, fail to impress. Defendorf says ("Lectures on Psychiatry," Yale Medical School): "After a duration of many years (in one case thirty-five), a moderate amount of mental weakness appears, when patients become incapable of application, take less notice of their environment, and less care of themselves. In some cases the disease may seem to be at a standstill for years, while in others partial remissions occur during which patients may be able to rejoin their family, but are rarely in a condition to resume their accustomed occupation." If allowed to go home they should be carefully watched.

Authors have described several forms of paranoia—

early, late, querulent, erotic, religious, alcoholic, hallucinatory, acute, and chronic—some of which merit a brief notice. There has been a tendency to overdo this subdivision, thus obscuring the general picture. In all forms the *fundamental symptom*—persistent, systematized delusions of persecution—is practically the same, but the picture is colored by various factors. According to my view, paranoia is always chronic and the age at onset immaterial, except that querulency appears later than the other forms, and leads more rapidly to deterioration.

In querulency, first described by Hitzig in 1895, a few cases present sufficient peculiarities to merit description. The psychosis is of gradual onset, the conduct of patients is due to an actual delusion, and the ideas of legal injury are associated with a single, very definite standpoint, to which they always recur. The exciting cause is usually some real event, possibly a legal injustice, an unfair decision or adjustment of claims, or an editorial, all of which are delusionally explained. Hence the patients enter a suit in either civil or criminal courts, or both, and when the decision is adverse carry the case to the highest tribunals, and, failing satisfaction or a "just verdict" from these appeals, apply in person or by letter to magistrates, legislators, cabinet officers, and even the president or king. To confirm their claims they carry about copies of court decisions, voluminous documents, newspaper clippings, etc.

However amenable at first, they soon reach a point where they cannot give any credit or attach any importance to the opinions of others, and in this respect their judgment is entirely biassed or obscured. Their memory is unusually retentive, and they delight to air their legal lore on all occasions. Their conversation and letters teem with legal phrases and quotations. Consciousness is clear and thought coherent, but they show limited ideation by constant and tiresome recurrence to their delusions. While there is usually no change of personality, patients display a heightened self-feeling, a certain optimistic superiority, an over-estimation of self. At the same time they are easily irritated, and shower scurrilous abuse and accusations of injustice, venality, and perjury on all opponents.

There is an increasing enlargement of the delusions, which are deeply rooted in the mental personality and worked up into a system. Hallucinations are rare. A striking feature is the senseless way in which patients neglect their family and business, squander their money on and devote themselves to a cause which does not merit the attention bestowed on it.

Froward, litigious, and even weak-minded persons may sometimes pester the courts in a way similar to that of querulents, but proof of actual delusions on which litigation is based, the complete inaccessibility to instruction or argument, the injudicious conduct, and the persistence of symptoms for years facilitate the differentiation. The limitation of thought may explain the mental deterioration which occurs earlier and is more marked than in other forms of paranoia, but never comes to complete dementia.

In erotic paranoia patients imagine themselves admired or loved by persons of the opposite sex, and usually of higher rank. Their love is romantic and platonic, and may last for years before it is divulged, except by casual meetings or occasional remarks. The most trifling things, such as a nod, smile, rosebud, costume, flight of birds, etc., are mystic or symbolic. The loved one appears at the window as they pass, attends the same church, and gives "significant looks." "All know it, but say nothing directly." The delusions may exist for years before they are betrayed by actions, or the "affinities" are annoyed by attempts at interviews or threats. In all cases the love is believed to be mutual. Where sexual excitement exists it usually assumes the form of perversion or onanism, and is specially intense at night. Hallucinations are infrequent and transitory. When the delusions become fixed and patients obtrusive by interviews, indecent letters, etc., their conduct leads to arrest and commitment to a hospital.

In religious paranoia patients begin to manifest morbid religious tendencies during adolescence. Prolonged abstinence from food, protracted meetings, excessive study of the Bible eventually upset a weak personality. Texts are misapplied or rigidly construed, practice is swamped by theory, works are perverted by misdirected faith, and eventually delusions of inspiration and exaltation arise and develop logically into a system, which gradually assumes a fantastic garb. More women are affected than men. Patients become Messiahs, saints, prophets, or parents of a new and greater Christ. Many have mystical intercourse with Christ, the Virgin, or angels. Some indulge in sexual perversions, and all are more or less erotic. They are the plagues of clergymen and unendurable to the community, which eventually demands their seclusion. They are not very dangerous unless opposed, but occasionally one attempts to sacrifice one or more members of his family by "direct command of God." All are absolutely inaccessible to reasoning.

Alcoholic paranoia is characterized by partially systematized delusions of infidelity, irritability, occasional violence, and homicidal or even suicidal tendencies. Delusions are concealed or denied during hospital residence, but reappear on discharge.

Diagnosis.—This rests upon the evidence of defective endowment, early "peculiarities" of conduct and manner, slow onset, gradual development of a stable system of persecutory delusions, hallucinations, retrospective falsifications of memory, exaltation or change of personality, and violent assaults, with preservation of clear consciousness, coherence, and absence of marked mental deterioration for many years. Persecutory delusions appear in other psychoses, but often are purely episodal, and must always be considered with the course of the disease. Many cases have been classed as pure paranoia which really belong to the paranoid forms of dementia præcox (Kraepelin). In them the onset is more acute, the delusions develop rapidly (often inside a month), their senselessness often transcends the bounds of credibility, they frequently disappear to make room for others, and are largely somatic. Hallucinations are numerous and play an important rôle. There are pronounced sadness or anxiety, abrupt changes of disposition, periods of excitement, and sometimes stupor. There is occasional flightiness, the train of thought is confused, and there is little tendency to harmonize the delusions with the previous life.

Kraepelin distinguishes two groups of paranoid dementia. The first terminates in marked deterioration inside of two years. The second may last for years without much deterioration, there is some attempt at a "system," and the delusions are fantastic—absurd somatic symptoms characterized by neologisms (flesh bulging, blood stilling, heart crack, spectrones, etc.). The thoughts are read, changed, or withdrawn, and there may be two persons in the body—one hostile, the other friendly. The acute hallucinatory paranoia of some writers should be included in these groups, or with alcoholic delusional insanity.

A few cases of dementia paralytica, dementia senilis, and melancholia of involution present a temporary resemblance to paranoia, but can be distinguished by the absence of gradually developed and logically elaborated delusions which permanently dominate the entire psychic life, and by the presence of characteristic physical symptoms, with mental deterioration.

Prognosis.—This is absolutely unfavorable and no genuine case ever ends in recovery, although remissions may occur, which are more apparent than real. Patients, however, are never reduced to a condition of complete dementia, and after very many years display only a moderate blunting of the higher faculties and finer feelings, a moral anergy, a decreasing energy of action and capacity for work, and a limitation of the spheres of interest, which are sometimes mistaken for intellectual defect. Some writers state that involution occurs earlier in paranoiacs, and senility may color their last years by its characteristic anatomical degenerations.

Treatment.—In the fully developed disease it is essential that patients be confined in a hospital, on account of

their menace to the safety of the community. Here the regular routine, occupation, plenty of fresh air, suitable diet, and various diversions may at least postpone mental weakness and partially ameliorate the condition. Unhappily most paranoiacs rebel against confinement, struggle for freedom until their energies are paralyzed, consider every one around them as persecutors, and threaten, plot against, or even attack them. Hence at all times they require careful watching to prevent injuries and fatalities. Drugs are not indicated except an occasional sedative to allay excitement. In the future treatment should be directed more and more to the premorbid, prodromal, and, above all, prenatal factors. If marriage could be regulated, or the hereditarily defective be secluded from early childhood with suitable environment and training, mental, moral, and physical, much might be done to prevent the evolution of this psychosis.

Lack of space precludes discussion of the important medico-legal aspect of paranoia.

James Mortimer Keniston.

XXIII. INSANITY, PUERPERAL.—The term puerperal insanity is descriptive and does not need a definition, but it requires qualification. In the early classifications of mental disturbance names were given to symptom groups to correspond with the disease conditions which apparently gave rise to them. However, we now know that the relationship which was thought to be causative is really only one of association. Tuke's dictionary says:* "There is no special form of insanity which is to be distinguished as puerperal insanity; for though the various symptoms of mental disorder may appear in certain relationships more commonly with puerperal conditions than with others, yet there is nothing really special as to the form of the disorder." Clouston† describes puerperal insanity as a separate form, limited to the first six weeks after confinement. He also says: "By far the majority of cases, and by far the most acute and characteristic cases, occur within the first fortnight." The latter definition, which is the commonly accepted one, suggests that there is an essential relation between the phenomena of parturition and the puerperal state, and the insanity which develops. However, it must be remembered that physical disease during the puerperium, or even severely untoward conditions in the environment of the woman, do not of themselves produce insanity. We have only to recollect under what calamitous conditions women frequently give birth to children, and how commonly infection or auto-intoxication in some form follows labor, and even extreme traumatism, yet there is no mental disturbance. Besides the disturbance or aberration of cerebral functioning and the different factors which stand in apparent causal relation to the manifestations which result, there is to be considered the cerebral potentiality of the individual. The form in which the insanity may be manifested is not the product of any specific cause, resulting in the development of a definite symptom group; but, on the contrary, a process, varying within wide limits as to its intensity and form, depending upon the degree of defect in the individual for its extent, and upon her environment for the nature of its manifestations. It is true that mental aberration is frequently associated with the different developmental epochs in the life of the individual, and in women especially with puberty and maternity. But to say that puberty, the period of adolescence, or maternity, stands in causal relation with any particular form of insanity seems to be an unwarranted deduction, when we take into consideration the fact that all women pass through the epoch of puberty, the period of adolescence, and most women bear children; but only a comparatively small number ever become mentally disturbed as a result. Besides, when mental disturbance does occur, it is most frequent in primiparæ, especially if they have passed the age of thirty years. Then, too, the insanity bears no direct relation to the condition of the mother during the period of gestation, the severity of the labor, the presence of disease during the puerperium, nor the exigencies of the period of lactation. However, mental alienation occurring during any one of these periods does bear a constant relation to the degree of defect in the nervous organization of the woman; and the extent of this defect will determine the character of the insanity, the point in the cycle of maternity at which it will be manifested, its form, nature, and termination. The fact that puerperal insanity occurs most frequently in primiparæ makes the foregoing deduction obvious. The occurrence of insanity after the birth of the first child means simply that the cerebral potentiality of the woman was not equal to the strain of maternity. Even in those cases in which the outbreak of mental disturbance occurs after the birth of other children, the histories of all of the cases coming under our observation show that there was some degree of mental aberration after previous confinements; so that between the primipara and the multipara there is really no difference except as to the degree of instability and possible untoward conditions of environment.

When we stop to consider how women are warring against their natural position in relation to the reproduction of the species, while the competition of social and industrial life and the growing desire to avoid any responsibility which interferes with material advancement or social opportunity is so strong, it is not surprising that we should find so many disturbances of the nervous system associated with the bearing of children; nor that this originally physiological function and process should be credited with the untoward results which so often accompany and follow it. There are probably very few women who enter upon the period of gestation without some misgivings and more or less resentment, because of the physical discomfort connected with their condition, as well as the annoyance resulting from interference with their pleasures and social opportunities. It is certain also, if she has borne children before, that the mental attitude of the woman toward her condition will be largely influenced by personal experience of the discomforts, annoyances, and dangers of maternity. Aside from the occasional woman in whom the function of child-bearing continues to be a physiological process, there is practically always more or less disturbance of health during pregnancy, either physical or mental; and when we remember the intimate association of the nervous system with the functional activity of the reproductive organs in women, and how quickly disturbance in the one is responded to by disturbance in the other, we ought to expect that there would be more or less intimate association of mental disturbance with child-bearing. Again, on the physical side, we have to consider the effect of accident and disease during the period of gestation, complications of the act of parturition, or its excessive prolongation on account of disease in the mother, deformity or malposition of the child.

Following labor are the risks from post-partum hemorrhage, septic infection, and the ill effects of subinvolution; while, during the period of lactation, her inability to nourish both the child and herself, or the strain of its care and attention, in addition to other duties, may seriously affect the health of the mother, and therefore the welfare of the nervous system. The effect of pregnancy upon the nervous system of the woman, and the peculiar susceptibility of women to causes of mental disturbance during the puerperium are so well known, even among the laity, as to have resulted in a definite tradition, with certain conventional rules for the conduct of the pregnant woman and the ordering of her environment during the period of gestation and after labor. These ill effects seem, too, to increase with civilization and its requirements. In other words, along with the increased capacity to enjoy there goes a proportionate tendency to suffer. While frequent child-bearing, overcrowding, and bad surroundings in the tenement districts of the city, exposure and overwork in the country among the poor, bring a train of physical ills to complicate maternity,

*Tuke: "Dictionary of Psychological Medicine," article "Puerperal Insanity."
†Clouston: "Mental Diseases." Lecture 15, "Puerperal Insanity."

high-pressure intellectual life and social competition have an equally disastrous effect upon the well-to-do. So that whatever weakness or defect may exist in the mother is exaggerated by her condition, and what was originally a physiological process becomes a pathological one; out of which develop a host of conditions, most of which are temporary, but often they destroy the physical or mental health of the woman.

It is seldom, however, that the woman is both physically and mentally ill at the same time. On the contrary, it is quite infrequent to find mental disturbance, other than delirium, associated with the accidents of labor or with septicæmia; while the victim of the insanity of pregnancy, as a rule, has a normal labor and puerperium. It is true that the pregnant or parturient woman is frequently hysterical and neurasthenic, because of nervous instability brought about by untoward conditions in her environment, operating during the cycle of maternity; and there may and do develop marked changes in her character and disposition, but these disturbances disappear after the birth of the child. The various disturbances associated with maternity simply prove what we know to be a physiological fact—that is, the intimate association between the function of reproduction and the activities of the rest of the organism,—while the greater instability of the nervous system in women renders conspicuous and prominent those changes which the concentration of her vital forces in the process of reproduction makes possible and renders apparent; because under modern social conditions the nervous system is not equal to the task of controlling its own manifestations and meeting the extra demands upon it.

It is probable that those women who become insane during the puerperium have also manifested some sign of mental disturbance during the period of gestation; but it has been overlooked because domestic tradition makes those familiar with the individual expect some departure from the normal and usual habits of the woman, and the changes in her character and conduct are attributed to anything but the real cause.

We have never found anything peculiar or distinctive in the manifestations of mental aberration associated with maternity. It is true that more women recover who become insane in connection with maternity, and this is especially true of the large number of cases which for obvious reasons are not committed to hospitals for the insane. But these cases are almost always ones of acute delirium or confusion, the mental disturbance being consecutive to exhaustion of vitality, insomnia, shock, or septicæmia; and it may be questioned whether the confusion and delirium in these cases are really insanity. We have noted, in studying the case records of over three thousand women, that outside of the degenerations taking place during the periods of adolescence, the climacteric, and senescence, the insanity of the rest of the women was practically always in some way related to maternity. It is not surprising, when we consider the marked influence of pregnancy and maternity upon the life processes in women, and the demand they make upon the nervous system, especially in primiparæ, that any instability or defect should become conspicuous; or that if the former be marked the nervous system should be unbalanced, while in the latter the strain should be the starting-point for the degenerative process. There are very few women who do not suffer from depression and irritability during pregnancy, and perverted appetite is quite common; while some, even in whom there is no other manifestation of aberration, will suffer from perversion of some one of the special senses—usually in the form of olfactory or gustatory hallucination. Then there are the morbid self-consciousness and the different forms of unreasoning fear, jealousy, suspicion, and emotional outbreaks. Now if these disturbances occur in the average woman, it is not surprising that they should be exaggerated in the unstable, or become the starting-point for progressive degeneration in the defective. In the simplest form of puerperal insanity there is usually the addition of confusion and loss of control to what are considered the ordinary nervous disturbances associated with the puerperal state. In others the patient passes from confusion into delirium. However, this delirium is not really a part of the insanity, but is superadded to it, and always has for its antecedents exhaustion of vitality, insomnia, and impaired nutrition. Therefore delirium may occur in the course of any acute insanity, if the conditions which give rise to it are present.

As a rule those women who have been despondent during the period of gestation, and are afterward insane, become excited; while those who have been irritable, hysterical, or exalted become depressed. In some cases, instead of recovery following, the delirium subsides into maniacal excitement; the patient who is depressed becomes suicidal, or manifests homicidal impulse toward the child. Again, the woman becomes the victim of religiosity, with grandiose or depreciatory ideas which govern her conduct; or she may develop auditory hallucination, to be followed by persecutory ideas. Sometimes there is simply progressive mental reduction, with the furtive suspicion, obstinacy, and explosive outbreaks of violence characteristic of the animal. Of course, there are infinite variations in these manifestations; but whatever form the disturbance assumes, it will be found to be related to a definite degree of instability or defect in the individual: the simplest form of mental disturbance being associated with brain instability, while the graver manifestations are associated with defective development, and are proportioned to the degree of defect, as shown by the heredity and corresponding limitation of cerebral potentiality.

This being the case, in considering both the diagnosis and treatment of puerperal insanity, as well as the prognosis, we are dependent more upon the life history of the patient than upon her mental state or immediate physical condition. Furthermore, aside from its influence on the method to be adopted for the management of the patient, we are not concerned with the form in which the mental disturbance is manifested. It is unfortunate that the noise she may make and her excessive motor activity, which are of no importance so far as prognosis and treatment are concerned, should occupy so much of the time and attention of the physician and family, to the exclusion of the proper study of the physical conditions present and the restoration of the self-control which the patient has lost.

In the presence of the acute forms of mental disturbance, we have to determine the physical conditions to which they are consecutive. They usually have for their immediate antecedents exhaustion, constipation, and insomnia; and these conditions may have antedated the birth of the child, the strain of labor being the final cause of the upset of an unstable nervous system, or there may have been infection after labor, and the consequent septicæmia has been the exciting cause of the conditions which precede the acute outbreak. Again, none of these physical manifestations may be present, but the woman may be restless and uneasy after her confinement, sleep poorly, and take but little food. About the third day or later, she will suddenly break out in a fit of explosive laughter or convulsive weeping, and these outbreaks may be followed by violent maniacal excitement, or are preliminary to the progressive development of stupor. If the outbreak is one of excitement, the woman becomes hilarious, shouts and sings, and if not restrained dances about the room, disrobes or tears off her clothing, refuses food, does not sleep, but apparently does not lose either in weight or strength. She may be passionately attentive to the child, utterly indifferent, or violently antipathetic; and these various attitudes may also be maintained toward her husband and family. This exaltation may keep up for some time, then gradually subside; or the exaltation may be followed by great emotional disturbance. The woman will sob convulsively, throw herself about in bed, express great fear and anxiety, cling closely to her husband, relative, or the nurse. Again she may shrink from all those who have been closely associated with her. If this emotional outburst is followed by

quiet sleep, the prospect for recovery is good; but if, on the contrary, these extreme mental states alternate, only a little food is taken, sleep is broken or absent, and especially if the woman becomes lascivious in her conversation and conduct, it is probable that the outbreak is but the beginning of a progressive degenerative change, and that, at best, recovery will be only partial. The most hopeless form of puerperal insanity begins very insidiously. Usually there is nothing to attract the attention of those about the patient except progressive indifference to the child, furtive suspicion, disinclination to talk, restlessness and a disposition to pick or pull things to pieces. One woman was apparently free from mental disturbance, yet whenever she could get hold of a pair of scissors she would begin to cut up the bed clothing or her own. When stopped she would laugh, appear momentarily confused, then apparently forget that she had done anything out of the way. There may be sudden aversion to the child, or jealousy of the husband with suicidal impulse. (It is a safe general rule to regard all puerperal women who are insane as liable to harm the child, no matter how apparently affectionate they may be.) There is another class of cases in which the woman becomes confused and suspicious, gradually lapses into stupor, becomes filthy in her habits, does not take food voluntarily; the tongue becomes swollen and heavily coated, the breath foul, the extremities become cool and clammy. This condition may continue for a long period without change, be followed by recovery, or partial restoration with final lapse into dementia. These are cases of profound trophic disturbance, probably due to autointoxication, apparently from paresis of function in the vegetative organs, and especially those concerned in elimination.

The treatment of puerperal insanity resolves itself into a consideration of the conditions, both physical and mental, under which it exists. Acute and apparently sudden outbreaks of mental aberration during the puerperium suggest the probability that some somatic disturbance exists, or that something untoward has developed in the environment of the patient. In those forms of insanity, however, which are gradual in their onset, and not marked by any conspicuous manifestation of mental disturbance, the presumption in favor of an immediate exciting cause in the state of the patient is not warranted, and careful investigation must be made as to the phenomena of the period of gestation, for the possible presence of some diathetic condition, as to the life history of the woman, and these investigations are especially necessary when we have to consider the prognosis.

While the immediate exciting cause of the mental disturbance in the puerperal woman may have an important bearing upon her physical welfare, and therefore indirectly upon the progress of the insanity, it does not affect the prognosis as to recovery from the mental disturbance. The *prognosis* in any given case of insanity connected with maternity is, other things being equal, dependent upon the heredity and cerebral potentiality of the woman. Further, those cases having an heredity of insanity alone, or a neurotic heredity, are most likely to recover, while those having an heredity of consumption, alcoholism, syphilis, or cancer are the most certain to be the victims of progressive degenerative change. Or, to express the same conclusion in another way, the children of the neurotic and insane are unstable, while the children of those suffering from somatic disease which seriously impairs vitality are defective. Therefore any physical disease or mental strain may be sufficient to produce insanity in women after confinement who are unstable or defective in their nervous organization; but the insanity is not the result of the disease or strain *per se*, nor is there any special form of mental aberration.

The *treatment* of puerperal insanity, therefore, is the same as the treatment of any other form of insanity. We have to accomplish, so far as possible, the elimination of untoward conditions in the environment of the patient, and at first, especially in cases of delirium or acute excitement, isolation and absolute rest in bed are essential. We cannot treat the mental condition directly, so our efforts must be directed toward the relief of such somatic disturbance as may be present. It is important to remember that no matter what the form of insanity or the previous physical condition of the patient, the presence of the mental disturbance involves also interference with the vegetative functions. Therefore the regulation of their performance becomes our first consideration. Impairment of digestion, constipation, and some renal inadequacy are always present. Therefore we should avoid, so far as possible, the administration of any drug or the use of any method of treatment which does not have in view the relief of auto-intoxication and the active stimulation of all of the emunctories of the body. It is especially important that the bowels should be thoroughly emptied and kept active. In delirium and acute excitement, much nourishment is needed; but it should be given in such form and quantity as will least tax the digestive organs. Sleep is also of the greatest importance, but it must not be gained by artificial means and at the expense of the functional activity of the vegetative organs; nor by means so powerful as to destroy the vitality of the already weakened nervous system or further depress the weakened heart. The régime to be carried out in any given case will of necessity depend upon the individuality of the patient and her environment.

Harry Ashton Tomlinson.

XXIV. INSANITY, THYREOGENIC.—

A. Myxœdematous Insanity.

Myxœdema, first described by Gull in 1873, and named from its most superficially characteristic symptom by Ord in 1877, is due to a partial or complete loss of function of the thyroid gland,—either from congenital absence or loss in early childhood (sporadic cretinism), cystic degeneration with atrophy (endemic cretinism of goitrous subjects), parenchymatous degeneration with interstitial change (ordinary acquired myxœdema), or a surgical operation (cachexia strumipriva). The symptoms of this disorder of nutrition vary with the rapidity of loss of gland function, and also with the age of the individual at the time of onset, and there are many intermediate forms between the infantile and the adult.

Acquired myxœdema of the adult, a disease of cold climates, more common in women, is of insidious onset and usually of slow progress, with remissions during warm weather or during pregnancy, and, if untreated, terminates in death in from one to thirty years. The average duration of life is between six and seven years.

Advanced cases uniformly present mental symptoms, and there may be some question of the necessity of giving them separate consideration under the title of myxœdematous insanity, since they are merely symptoms, some constant and others occasional, which come late in the course of the disease, indicating more profound changes, and which do not appear at all if early and proper treatment is given.

These patients are slow of comprehension, of thought, and of action, exhibiting a clumsiness of mind analogous to that of their bodies. There is a feeling of lassitude, a loss of power of voluntary attention, and a distinct sense of effort in doing the little they succeed in accomplishing, even in forming the words they speak. They are dull, heavy, placid, self-satisfied, or mildly euphoric, which state in some cases is so pronounced as to have led to a diagnosis of general paralysis. Though usually mild and even-tempered, and at times stupid, perhaps sleeping eighteen hours out of the twenty-four, they are liable to be irritated by slight causes and to become confused under unusual or agitating circumstances. There is impairment of the memory for recent events from an early stage of the disease. These symptoms, which are common in a greater or less degree to all cases, may be so pronounced as to simulate dementia; but until a late stage they always have a fairly good insight into their condition, concerning which they are usually quite sensi-