Prognosis in Schizophrenia. By EDWARD A. STRECKER, M.D., Professor of Nervous and Mental Diseases, Jefferson Medical College, Philadelphia, and Medical Director, Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia; and GORDON F. WILLEY, M.D., Senior Assistant Physician, Pennsylvania Hospital, Department for Mental and Nervous Diseases, Philadelphia, and Instructor in Psychiatry, University of Pennsylvania, Graduate School of Medicine, Philadelphia.*

INTRODUCTION.

PROGNOSIS in psychiatry, and particularly in schizophrenia, is in a somewhat chaotic condition. The dearth of literature concerning prognostic landmarks is convincing evidence as to the truth of this assertion. For many years an unadulterated pessimistic outlook was almost a psychiatric boast. While such an attitude is no longer general, there still tends to be a more or less rigid dependence of prognosis upon diagnosis. Sometimes, and perhaps often, this dependence is so slavish that in a given case a favourable result is interpreted as a sure signal for diagnostic revision.

There are at least two reasons for the persistence of this fatalistic conception. In the first place, it should be freely granted that in general dementia præcox is not a benign psychosis. While, without doubt, prognostic hopelessness would be much lightened by the inclusion and careful consideration of early schizophrenic situations in which definite psycho-pathological and mayhap somatic reactions are clearly at work, though they have not progressed to obvious psychotic entities, yet in spite of this it is too true that deterioration does appear in a strikingly large number of patients. Therefore, a considerable percentage of the unfavourable predictions which are made may be referred to sound psychiatric experience.

The second reason is less valid and less imperative. It dates back to the period of purely formal and objective psychiatry. Modern and so-called dynamic psychiatry is so deeply indebted to this period, whose usefulness has not yet passed, that one hesitates to point out its deficiencies. However, it will be recognized that the descriptive method needed sharply defined material to describe. Therefore it had to deal largely with well-advanced

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psychotic phenomena. Naturally, dementia præcox became restricted to a clinical group, which almost always was synonymous with chronicity and deterioration. In this way diagnostic and prognostic criteria were continuously narrowed, and given the guise of infallibility which they never possessed.

Is Complete Prognostic Pessimism justified?

In order to give a prognosis with authority, one must be able to call upon reliable, unmistakable and crystallized diagnostic criteria. Such surety of knowledge is rare alike in psychiatry and internal medicine. In the latter field, tubercular meningitis with the bacillus of Koch and other evidence in the spinal fluid may be cited as a disease in which a bad prognosis is justified. In psychiatry, perhaps, paresis furnishes another legitimate example. But surely the diagnostic picture in schizophrenia is nothing like as clear nor are its clinical manifestations as exact. As a matter of fact, it would be difficult to name a morbid condition whose boundaries are more vague and inexact and whose clinical criteria are more fluid and changeable.

Clinical Limits of Schizophrenia.

Since diagnosis and outcome are apt to be regarded as more or less inseparable, it may be permissible to review briefly the clinical limits of the psychosis which is under consideration. As a clinical entity dementia præcox or schizophrenia rests on a very insecure foundation. Uncertainty and even total divergence of opinion in regard to ætiology has made for constantly shifting diagnostic criteria. At the Round Table Conference for Clinical Psychiatry of the American Psychiatric Association in 1921, a representative group of psychiatrists were unanimous in refusing to commit themselves to the mention of a single symptom which was surely an index of malignancy.

Kraepelin's conception of dementia præcox is too well known to require reiteration. Although rigidly objective, its value within certain limits is unquestionable. Perhaps a fair criticism is that he has made the association between præcox and catatonia altogether too binding. If we are to accept this relationship, then we cannot concur in Kraepelin's inevitably bad prognosis. To Stransky the basic element of symptomatology is intrapsychic ataxia, which has led to the designation "schizophrenia." By intra-psychic ataxia is understood "a disturbance of co-ordination between the intellectual attributes of the whole psyche and the

affective attributes." There is disharmony " between the expression of affect and the idea content of thought. For example the patient cries when he should be glad, or *vice versâ*, though much more common than this contrasted reaction is an affective reaction which is inadequate—the patient merely simpers or smiles when the facts would warrant sadness or hearty laughter." Hoch postulates a particular type of dissociation: " In it there is an acceptance of what should be painful ideas evidenced either by incomplete manifestations of anxiety or depression or actually by smiling. We never see in dementia præcox the reverse—a painful interpretation of what would normally be pleasant. It is the pleasurable interpretation of what is really unpleasant that gives the impression of queerness in the mood of these deteriorating or chronic cases." Meyer emphasizes the affective alignment or contrast as determinants. Bleuler finds that the intra-psychic ataxia of Stransky is only a part of the splitting of the psyche. Negativism is a pure exhibition of such splitting. At the bottom of the degradation of attention and interest is emotional deterioration. Kirby's elementary description of schizophrenia does less violence to the various symptomatic notions than any we have been able to discover. Briefly there is a seclusive personality or " one showing other evidences of abnormality in the development of the instincts and feelings " . . . " defects of interest and discrepancies between thought on the one hand and the behaviour-emotional reaction on the other " . . . " gradual blunting of the emotions, indifference or silliness with serious defects of judgment and often hypochondriacal complaints, suspicions or ideas of reference " . . . " peculiar trends " . . . " fantastic ideas " . . . " odd impulsive or negativistic conduct not accounted for by any acute emotional disturbance or impairment of the sensorium " . . . " autistic thinking " . . . " dream-like ideas " . . . " feelings of being forced, of interference with the mind, of physical or mystical influences, but with retention of clearness in other fields (orientation, memory, etc.)." The four chief clinical forms, which, however, are often only transitory stages, are the paranoid, characterized by " prominence of delusions, particularly of persecution or grandeur, often connectedly elaborated, and hallucinations in various fields "; the catatonic, " prominence of negativistic reactions or various peculiarities of conduct with phases of stupor or excitement, the latter characterized by impulsive, queer or stereotyped behaviour and usually hallucinations "; the hebephrenic, " prominently a tendency to silliness, smiling, laughter, grimacing, mannerisms in speech and action, and numerous peculiar ideas, usually absurd, grotesque and changeable in form "; and the simple,

" defects of interest, gradual development of an apathetic state, often with peculiar behaviour, but without expression of delusions or hallucinations." This phase of the subject might be pursued indefinitely, and finally we might cite extreme points of view such as that of endocrine dysfunction, primary in the sex glands, secondary in the brain, which is not greatly concerned with the mechanism of disassociation of the psyche or the theory of focal infection, which practically ignores it. However, we have gone far enough to indicate that the clinical territory of schizophrenia is still very uncertain, and its limits are loosely placed.

On the whole, the true state of affect probably constitutes the safest index of prognosis. There is fairly common agreement among psychiatrists, that if the emotional life continues to flow in counter currents, is absolutely at odds with the thought and the behaviour and the remainder of the psychotic content, or is strikingly inadequate, then we have presumptive evidence of a chronic, deteriorating and malignant process. However, we should if possible be convinced that *the disharmony or diminution is actual and fundamental, and results from the unfolding of a basic psychopathological mechanism.* Such is the inadequacy of our clinical resources in judging affect, that frequently this determination cannot be made with any degree of surety. Affect cannot be measured as can, for instance, the output of urine. We are obliged to rely on observation and on the significance of the word and behaviour productions, which come to the surface much distorted, and which, unfortunately, usually permit of varying interpretations. This thought brings us to a statement of the chief premises of our study.

Premises of the Prognostic Study.

If possible we should like to disarm criticism by meeting it in advance. A recovery-rate of slightly more than 20% which is reported in this study no doubt will occasion valid objections. The high recovery-rate is only partially explained by the fact that the clinical material is from a private hospital, where considerable selection is exercised before admission as to acuteness and the favourable aspects of a psychosis. In addition to this we are entirely willing to admit that a percentage of diagnostic error may have occurred. It may be somewhat paradoxical to state in this connection that a measure of *possible* diagnostic error is needed if one wishes to attempt to unravel the prognostic tangle of schizophrenia. In other words, if the objective is to ensure absolute accuracy of diagnosis, then symptomatic criteria must be so rigid that they will be restricted to practically a single phenomenon,

namely deterioration of sufficiently long duration and of such gross type, that chronicity and malignancy are expressed in the unmistakable characters of true dementia. Needless to remark, we have not adhered to any such inflexible judgment. We were exceedingly careful in each case to found diagnosis on definitely established and generally recognized criteria. On the other hand, diagnosis was never revised because recovery occurred. Our effort was not to split diagnostic hairs, but to arrive at a prognostic index of psychotic reactions which would be regarded as schizophrenia in the mature judgment of competent psychiatrists.

A second objection which might be brought forward could refer to the fact that our analysis of pre-psychotic situations or psychotic signs often only served to show that we were *not* dealing with basic malignancy, but with a remarkably close simulation produced by a combination of extraneous or even internal circumstances and factors. Here again we plead guilty, and the justification is the same—that is, that the value of a prognostic research lies chiefly in its ability to uncover dementia præcox reactions, or if preferred, *præcox-like* reactions which are recovered from, and to discover how and to what extent they differ from those types which eventuate in chronicity.

Method of Approach.

We were anxious to select a single method of approach which would promise the most fruitful return. During the past decade, and even before it, a great deal has been written about "constitution" in schizophrenia. By it is understood "make-up" in a broad and very comprehensive sense—the organic and psychological make-up of the individual who develops or is apt to develop the psychosis. In this field the contribution of Adolph Meyer is outstanding. Gibbs, Lewis and many others have made meritorious efforts towards the delineation of somatic schizophrenic characteristics. There seems good reason to believe that eventually such studies will result in the recognition of a more or less distinctive type—basically schizophrenic. This will be of concrete value in prognosis, since it will separate a fundamental and intrinsic group quite different from the group in which extraneous and sometimes accidental factors are at work in imparting a clinical impression of malignancy to benign psychotic reactions. As the *résumé* of our studies is presented, it will be noted that perhaps they have succeeded in partially defining a class of patient, clinically rather typically schizophrenic, but on analysis, either in themselves or in their psychoses, susceptible to explanations which

revealed the disease process as other than basic and constitutional. Unfortunately the researches on constitution have not yet reached a point where they may be utilized as a complete method of approach.

The method of analytic interpretation of psychiatric trends—the unravelling of material coming to the surface as a portion of the psychotic content (words, postures, gestures, facial expressions, drawings by the patient, dreams, etc.), at first glance would seem to offer a tempting field, whose industrious exploration should yield valuable prognostic finds. Theoretically one should, according to the technique of psycho-analysis, be able to measure the amount and type of conflict and striving, the depth of regression to various levels, and thus, ultimately, the likelihood of recovery. We hesitate to make pronouncement concerning an aspect of psychiatry about which we may not be competent to judge, but we have the impression that the language of archaic symbolism which is most important in arriving at prognostic conclusions is at this time scarcely lucid and exact enough to admit of general clinical use. In other words, the body of knowledge which has been acquired is hardly sufficient to yield constant prognostic criteria. It may be that in other hands this plan of study would have been more fruitful, though we have not yet seen convincing evidence of its application, except in isolated case-reports. These sentences are not written in a critical vein at all, and we are fully cognizant of the impetus which the so-called "new psychiatry" has given. No doubt the future will bring even more important contributions, and in this way helpful prognostic guides may be furnished.

Thus by exclusion, and by a tentative testing of our case-material, we finally adopted what might be called the "long-section" method of clinical study as the most useful for our purposes. Practically, it is the plan utilized by Hoch and McCurdy in their contribution to the prognosis of involution melancholia. However, we have elaborated it to a considerable extent, and have not confined ourselves to a scrutiny of the psychotic content.

The scope of the investigation included certain statistical information, such as age, civil condition and nativity. Racial differences favouring the development of unusual psychotic trends were kept in mind. Family history was searched not only for the existence of abnormal types, but also for the presence of influential character traits, which might have been inherited by the patient and later have become dynamic enough to modify and distort the clinical expression of the psychosis. The personality was carefully reviewed on account of its intrinsic importance from the standpoint of prognosis. Certain idiosyncrasies of make-up, as for instance

seclusiveness, or even suspiciousness, are ordinarily regarded as suitable "culture media" for the growth of "malignant" mental illness, and in this connection an effort was made to discover whether such propensities were actually inherent in the individual, or whether they were artificially introduced and fostered by environmental circumstances. Furthermore, it is conceivable that the personality might be dominant enough to mould the symptomatology into peculiar forms, so that common diagnostic marks become of little avail, and prognostic judgment is apt to go astray. The physical pre-psychotic state was considered and appraised. The precipitating situation was retrospectively measured, its somatic and psychogenic elements, its acuteness or chronicity, and the possibility of its correction were considered. One of the queries proposed was: To what extent do the mental symptoms reflect the motivating extraneous happenings which antedated them, and may their unfavourable type be explainable as a disguised but nevertheless more or less logical response to the precipitating conditions? The onset was reviewed in regard to its abruptness, physical accompaniments and the setting in which it occurred. At this time, when resistance was at its lowest ebb and inhibitions were presumably much diminished, was there the intrusion of incidental factors which later imparted a false appearance of chronicity to the psychotic content? Finally, all the somatic and psychic phenomena of the mental disease itself were taken into consideration. There is, we believe, a tendency to underrate the former, and yet even mild toxic states may produce many obstacles which stand in the way of a true evaluation of the various elements which make up the mental state. Two symptoms in particular, stupor and disturbance of affect, are extremely difficult to judge correctly. The boundary line between "benign" and "malignant" stupor is not at all sharply defined, and there still remains much unexplored territory. Again, our methods of testing emotional resiliency and depth are markedly restricted. Slight disturbance of consciousness, racial or even individual habitual inadequacy or peculiarity of the expression of feeling may prevent moving affective trends from reaching the surface in a form which is likely to be rightly interpreted by the observer. Nevertheless, on the accuracy of the estimate of affect frequently depends a valid prognosis.

STUDY.

General Statistics.

One hundred and eighty-six patients, consecutive admissions, were subjected to this intensive study. They can be divided into

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two groups, "recovered" comprising 38, and "not recovered" (improved, stationary or deteriorated), 148. The material is not recent; has been well worked over and the cases followed, so that mere remission of symptoms is excluded by the fact that the average symptom-free period of the "recovered" group is now upward of five years. Space forbids the presentation of cases in any detail, and in lieu of this, brief examples bearing on the points at issue will be given as the subject is expanded.

Not only for the sake of simplicity, but chiefly because no great difficulty was encountered in classifying the patients as catatonic, hebephrenic, paranoid and simple, this nomenclature was adopted. The recoveries included catatonic 18, hebephrenic 8, paranoid 12, and simple none. In the total list there were catatonic 45, hebephrenic 49, paranoid 85, and simple 7. This notation adds nothing essential to prognosis. The comparative frequency with which catatonia clears up has been noted by many writers. Further on, we will attempt to point out certain conditions which seemingly may determine a catatonic colouring and give the case a particularly benign aspect. The same will be shown to hold good, though less emphatically, for a few hebephrenic and paranoid syndromes. The average age of onset of the recovered group in each type was as follows: Catatonic 28 years, hebephrenic 24 years, paranoid 35 years. The civil condition in each group was: recovered—single 27, married 10, divorced 1; not recovered—single 78, married 65, widowed 4, divorced 1.

Race.

The first question of prognostic interest which we feel has not been sufficiently emphasized concerns race. Prominently among the catatonics in the favourable group there was a relatively high proportion of unassimilated Jewish patients, and another type belonging to that small division of Pennsylvania German stock, which, in spite of long residence in this country, has remained distinctly alien.

All authorities stress the essential and basic differences between the Jew and the Christian. Myerson particularly calls attention to the strong individuality of the Jew, but insists that this and other distinctive traits are due to the gradual narrowing of the sphere of activities enforced by the hostile attitude of society, so that he developed an urban, sedentary and cerebral character at the expense of his body. The oft-repeated observation that seemingly malignant psychoses show a high recovery-rate in the unassimilated Jew, if analysed, may probably be reduced to the likelihood of clinical

error which comes from our inability to gauge accurately habitual modes of reaction in an alien race, particularly when further complicated by a psychosis. Naturally, the appraisal of the kind and degree of affective trend is apt to be the more accurate the greater our familiarity with the subject Thus, in our family and intimate friends we readily learn to discover the presence of certain feeling tones on slight observational evidence, which criteria, if applied to strangers, would be valueless and even misleading. Therefore, it should be expected that certain races and nationalities whose habits of life and characteristics are more or less akin to our own are emotionally much more understandable than those who are alien in manner and custom. The immigrant Jew, by virtue of unusual racial, historical and personal environmental factors would seem to belong to this latter group. It has been our personal experience, which we have heard confirmed by a number of psychiatrists, that a higher percentage of malignant-like psychoses seem to recover in the Jew than in any other racial or national classes. We feel that such a consideration is involved in four of our patients.

As has been stated, in addition to the purely alien type, there are groups of individuals who have retained more or less distinguishing characteristics, even though they have lived in this country for many generations. This is perhaps true of that small fraction of Pennsylvania German stock which remained isolated in rural communities, and perhaps by intermarriage and restriction of outside contact strengthened a common feeling and bond of self-sufficiency, distrust for the opinions of others, and an inflexible opposition toward new customs. Two of our patients belonged to this class.

Family History.

Probably our study was not of sufficient statistical magnitude to reveal differences in heredity between the recovered and the chronic groups. On the basis of mental disease, alcoholism, epilepsy, criminalism and other degenerative influences in the ancestry there was little variation, each averaging about 35% unsound stock. However, close attention to the family records revealed two instances in which mental disease in a parent seemingly influenced prognosis. We take the liberty of citing a single case in some detail, because it illustrates the indirect influence of heredity in creating a type of unfavourable environment to which the patient was exposed during the formative, imitative and suggestible years of childhood. Whatever may have been the nature of the psychosis from which she suffered, it *should* have been expected to

show a schizophrenic colouring, since the material from which it drew upon for its content came from close association with a true case of dementia præcox. This important fact should have been weighed in arriving at a prognosis. The presentation of this case may serve also to indicate our general method of attack and historical analysis.

Female, æt. 35, single, and born in Pennsylvania of American parents.

The patient was the second of three children, and following the birth of the youngest the mother developed acute mania (?), which merged into a chronic psychotic state, marked by paranoid ideas chiefly centred in her husband and persisting until her death at fifty-four of diabetes. Five maternal aunts and an uncle were alike artistic and "highly-strung." The father had tics.

The patient's personality was a helpful one. She was vivacious, eager and friendly, energetic and thorough, optimistic and philosophical. Her principal handicaps were self-consciousness and a tendency to introspection. Education was obtained in both public and private schools, amounting to the equivalent of a college preparatory course. The study of music began at six, and was probably a constant source of pleasure and relaxation. She taught kindergarten, was very successful in her chosen work and "handled children well." At the age of nine she had an injury (the details of which are lacking), and was "upset and nervous" for a long time after, but regained and maintained normal health.

The immediately precipitating circumstances have to do with overwork, gradually waning health and strength and loss of weight. The recital of these bare facts constitutes merely a statement of the culmination of a long history of deterrent influences which reach back into early childhood. Though remote, they are not only well authenticated by the historical account, but their motivating power is clearly emphasized by the content of the psychosis. From her babyhood until the early thirties the environment in which the patient lived was excellent culture material for the growth of mental abnormality. The mother was insane and the victim of many delusions, and there was constant friction in the household. She did not escape from these depressing surroundings until three years before the psychosis appeared, and it is clear that the single year in New York where she taught kindergarten was perhaps the most satisfactory of her existence. "She was happy and contented and had many friends and recreations." However, the mother died, and though a conflict between desire and sense of duty must have arisen, the patient, nevertheless, promptly returned to her home, where for three years she was "dissatisfied, unhappy and overworked." This was the opinion of her brother, who saw beneath the surface, but at the same time he states that although "she disliked housework, yet she did it cheerfully, repressing her feelings." During the psychosis, when inhibitions were lowered, the patient said, "Father and brother expect me to get strong and wait on them for the next thirty-five years."

The objective phenomena of the psychosis appeared abruptly. She became worried, talkative and erratic and visited the neighbours with a bottle of medicine which the physician had ordered, asking their advice as to whether it would be safe to take it. She was flighty, and had difficulty in completing sentences. "A few days later she had a sudden excitement, was noisy and fearful, had visual hallucinations—saw imaginary faces at the windows. Now has ideas of persecution. Accuses her father of hypnotizing her. Mistakes the identity of persons. Is often disoriented for time and place. Has crying spells."

The psychosis, which had a 14 months' course, recalls her mother's mental disease by its division into acute and chronic phases. For several weeks there were acute manifestations—objectless over-activity, shrieking, grunting, hawking and expectorating to rid herself of the "black stuff" in her teeth, visual hallucinosis, a paranoid delusional trend—her father had "wished something on her," she had been made "crazy," there were "no friends," "only fiends," etc. There were episodes of posturing with closed eyes and mutism. These symptoms stood out from a background in which there was no discernible trace of affective accompaniment, and a diagnosis of catatonic dementia præcox was made.

Although the emotional component remained more or less formless, the delusional

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direction of the psychosis came more clearly into view. Her mind was being "read" by doctors and nurses, she was in the hospital for "research," felt "harnessed like a horse"; someone was "using" her mentality; she referred to the "code of ethics of those who have me in charge," and "a consultation of the people in charge of me"; thoughts were thrust upon her mind and she was pulled like a rubber exerciser; she was in the hospital for a purpose; there were wires under the floor; while she was talking her mind was doing something else, and she "could not control" her muscles and gestures. Auditory hallucinations both broke in on and repeated her thoughts. She frequently asserted that she was married, and once declared that she was pregnant and hoped the child would be a boy. Memory was good, orientation not more than partially lost, if at all, and the sensorium not obviously disordered. However, something had "dropped" in her head and it felt "muddled." While the signs of affective currents in the main were wanting, occasionally there was flippancy or weeping; once she buried her face in the bedclothes until cyanosed (presumably, from the setting, a suicidal attempt), and finally, as the mental symptoms diminished, a suggestion of exhilaration.

The improvement was gradual, the recovery complete, and has been held for three and a half years.

DISCUSSION.

To have diagnosed anything but schizophrenia would have left too much of the symptomatology uninterpreted. The few emotional signs never gave the *motif* for the remainder of the psychosis, and the delusions and hallucinations were of the præcox type. However, there were threads which connected the content of the psychosis with the previous life of the patient, that might have been more carefully traced, for they would have given the clue to the particular complexion of the mental disease, and left the thought that its forbidding aspects were determined more by extraneous factors than by inherent qualities and mechanisms. Other things being equal, the former is capable of a more favourable prognostic interpretation.

It was evident that the father was the object of the patient's paranoid suspicions, just as he had been many years before the target of her mother's delusions. In this respect, at least, the psychosis obtained its colouring from impressions received in early life, becoming fixed during the formative period and stored up for almost three decades. One may assume that with maturity came clearer understanding and conscious evaluation, and notions which were held as facts during childhood received their proper perspective, but that these conceptions were ever lost is incredible. They were always at hand, ready to burst into activity, and in one sense the psychosis merely swept aside the barriers which education, custom and convention had erected, and there was a ready return to the beliefs of childhood. This was all the more easily accomplished, when the father inadvertently closed the door of the pleasant life which she had discovered among congenial friends and surroundings away from home, and the death of her mother plus her feeling of responsibility made it necessary for her to return

to keep house for him and her brother. This mechanism finds substance in the psychotic incidents, only a few of which may be given. Usually she was suspicious and at times frankly apprehensive of her father; even though the hospital was to her undesirable, from many standpoints, yet she preferred to remain. Once she said, "This insanity is awful; my mother had it before me." Again, "When I argued with him (father) he said I was like my mother. I was glad to get away from him. Always afraid of father because my mother was afraid of him," yet she will live with him "because it is my duty," etc. Does one have to probe very deeply to see in the delusional belief of marriage and pregnancy a method provided by the psychosis to permit escape from an undesirable situation?

A similar situation was at work in another patient whose mother and sister both had mental disease, in all probability præcox.

Personality.

Personality admittedly plays a significant *rôle* in the problem of schizophrenia. The study of "make-up" must go far beyond mere casual summing up of personal characteristics. This aspect of the individual must be intensively scrutinized, not only intrinsically, but in all its relations in the life and to the contacts of the patient, if it is to be of any value to prognosis. Viewed in this way, it furnished indications which helped to point to a more favourable outlook in at least twelve of our patients.

Meyer made a constructive contribution to psychiatry when he emphasized the "shut-in" make-up in his conception of dementia præcox. Other authorities have repeatedly dwelt on its frequency, so that the fundamental relationship between the personality which withdraws from socialization and schizophrenia is now well established. However, we may, perhaps, differentiate between what might be termed a constitutional "shut-in" type and one which is the product of environment. The former develops in spite of normal surroundings; the latter is a feasible defence against definitely inimical reality. Other things being equal, the first argues for an unfavourable prognosis; the second does not necessarily weight the balance against recovery. We felt that we were able to make such a differentiation in the case of two of our patients.

The first patient was markedly seclusive in her own family circle, but on analysis this seclusiveness resolved itself into a not wholly illogical tendency to withdraw and escape from hopeless home conditions which constantly threatened to engulf her. Toward those who stood outside the family circle, and particularly those who had educational assets which placed them in a relatively superior position, she was not seclusive. On the contrary she was demonstrative, craved affection,

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and formed passionate attachments for them. Presumably the patient was the highest product of a very diseased family stock, and from childhood sought to raise herself above its low and sordid plane. The personal weapons which were unconsciously forged to accomplish this purpose were ambition, a love of the dramatic and affectation, which may be evaluated as child-like imitativeness of those whom she admired. Thus in one sense we may view the personality, particularly the seclusiveness, as a logical defence against an inimical environment. It provided an avenue of escape by making it possible to substitute unreality for hard and unpleasant reality. During the psychosis, which was quite schizophrenic in its symptomatology, there was the persistence of the wish to cut herself off from her family. She regressed to an infantile level in her behaviour, but several times said, " I am out of a book."

In the second patient there was likewise seclusiveness, but again it was clearly a refuge from the hard facts of the patient's life.

The patient, at 17, lived on a remote farm ; existence was rigid and monotonous, the father denied the family necessities, and was of that type of stern, unbending religion which regards beauty as sinful and reveres ugliness as a virtue. Even the mode of dress was prescribed, and a drab and shapeless garb had to be worn. The defect in socialization reached a high degree, and at 20 the patient was typically " shut-in " and remained seclusive for eight years. During a rather typical schizophrenic psychosis this withdrawal was pronounced. An excellent recovery was obtained. The pre-psychotic mental isolation should have been regarded as a logical reaction, the only available protection against, and compensation for, an unnatural environment. In one sense the patient's withdrawal from the situation in which she found herself (at an age when there must have been both physiological and psychological stirrings which could not find satisfaction or adjustment in the surroundings) was an effort, not so much to seek relief in unreality, as it was an attempt to hold on to the worth-while things of reality. The reticence during the psychosis may be thought of as the result of habitual behaviour, which finally had become productive of real inability to meet the demands of any kind of society. There is reason for giving the entire reaction such a valuation, instead of assuming the more complicated mechanism which underlies schizophrenic isolation.

We may now briefly refer to three patients who recovered from what seemed to be clear-cut catatonic præcox reactions. In each patient there was evidence of a disposition which might be described as stubborn. It comprised a marked opposition to the acceptance of contrary opinion and undesirable situations. In one it was probably an inherited or very early acquired trait, and a physical reaction pattern had become ingrained, for " even as a child she would stiffen herself, open her mouth and roll her eyes about if opposed in any way." In another it was clearly the result of a spoiling process in an only child, and reached the point where anger appeared " in the face of the slightest opposition or interference." In childhood the third was " markedly stubborn " and " hard to conquer." It is noteworthy that each of these individuals, when confronted with concrete conditions to which perforce they had to bow (illegitimate pregnancies in two instances, and a serious conflict with a school board in the third), became psychotic, and manifested blind catatonic outbreaks. That this " catatonia " may have been merely the pathological accentuation of prepsychotic " make-up " may be worth prognostic consideration.

In three cases the personality contained a greater or less degree of mysticism. In the first an unusually long retention of the "pretend stage" of childhood merged in the early 'teens into a concentrated interest in Hindu occultism. The second was a firm believer in telepathy, and the third was grossly superstitious and readily influenced. In the psychoses which occurred, apart from other phenomena, the somewhat vague paranoid delusional formation was of the kind which seems to draw its substance from a background of confirmed and unusually pronounced unreality. There is, perhaps, a less serious prognostic implication in the notion that the præcox-like direction which the mental disease took was, in some degree, merely the outgrowth of personal habits of belief, and a disintegration of self was not involved in the process.

In three other patients were pre-psychotic sensitiveness and paranoid-like tendencies, increased by complicating life conditions, and in one case an unsatisfactory marriage sharpened the already existing distrust and suspicion. The psychoses were all paranoid with much to indicate splitting. However, they made complete recoveries. The point which is to be considered prognostically is that after all no deterioration of personality was involved, and it provided in each case a foundation upon which was erected, not illogically, the structure of an acute paranoid psychosis.

In reviewing a group of acute psychoses with symptoms resembling dementia præcox, Hoch likewise asserts that the personality sometimes places the psychotic symptoms in a favourable light. He says: "Where the history shows difficulties in making adjustments, eccentricities, peculiarities in conduct, suspiciousness and other oddities in make-up, these idiosyncrasies are naturally carried into the psychosis when it appears. Thus the personal history may strongly suggest dementia præcox; the delusional ideas and reactions may also be suggestive of a deteriorating type of disorder, and yet we may be dealing with a nearly pure type of acute psychosis, such as a simple depression, into which the slightly odd personality has obtruded itself and has been prominent enough to confuse the picture."

Finally, before dismissing personality, we should like to present in some detail a case in which the mental illness furnished an outlet and temporary satisfaction for a sense of inferiority. We believe that when this occurs the outlook is likely to be favourable, even if the psychosis is schizophrenic in its clinical markings.

Female, single, 29 years old, native born. The maternal grandfather and a maternal uncle were alcoholic. The father was quick, clever, but "nervous,"

and the mother is described as well-balanced, but "deaf" and "not alert." Three brothers and one sister are normal and efficient.

The patient was quiet and not unsocial. The remainder of the personal characteristics seem to have been determined largely by environmental circumstances arising after the period of childhood. The patient did fairly well through the graded schools, although she was not unusually bright. Her ambition led her to do much reading and self-teaching, and with outside aid she finally acquired the equivalent of a high school course. An attempt to teach privately eventually failed, probably because the patient was a pronounced dreamer, and lacked the practical ability to find ways and means to overcome the drawback of an informally acquired education. In order to support herself she had to take a position as sales lady. Always ashamed of the work, she compared herself to her more successful sister and brothers and constantly enlarged an already existing sense of inferiority. How motivating this influence was may be judged by the plaint which came to the surface even at the height of the psychosis—"I didn't want to sell stockings."

The previous physical history was negative.

The precipitating situation occupied a period of at least two and a half years. Its background was constructed of a series of ineffectual efforts to escape mediocrity. She tried to read "deep" books in order to increase her intellectual equipment. From the retrospective psychotic productions it is evident that at this time she had tried for "greater things for years," consoled herself with the vain hope that the work she disliked was merely "a stepping-stone" or felt herself "caged" and "an onlooker." The death of her father resulted in deep grief and a tendency to seclusiveness, and two years later the death of the minister whose church she attended was the occasion of sorrow "out of all proportion."

The onset was insidious. Depression, a desire for solitude, taciturnity, slowness, forgetfulness, lack of interest and incoherence in the letters she wrote developed gradually over a period of almost a year, but she was able to continue to sell goods until a week before the hospital admission. The depression became augmented, there were crying spells, but also episodes of silliness. There were ideas of personal unworthiness and self-accusation. She "influenced" people harmfully and "had a vision to do things, but could not." The "presence" had "departed." The patient had bizarre somatic notions, "coldnes in the body and middle of forehead," which she feared would spread to the family.

The actual psychosis was somewhat unusual in type. Along with clearly retained consciousness and an affective reaction which had to be objectively judged as diminished and inappropriate, there was self-blame ("I am to blame"—"full of spirit poison"—"I did not illuminate my corner"—"I was perverted"—"should have let divine love in"), and a delusional somatic content ("iciness"—"stoniness"—"like cement"), but chiefly distinguished by belief in a power like "telepathy," which, against the patient's inclination, did harm to others. It made other patients and nurses "cough"—gave a "metallic harshness" to their voices—"caused stomach trouble." She did not want to look at the physician. "I don't want you to come into this strange queerness," etc. Hallucinations were infrequent and indefinite—"thoughts speaking to me"—"I see people I knew"—"I am semi-conscious." In the initial and final stage of the psychosis there was evidence of depression, but in the interim practically no concomitant physical expression of emotional stirring. However, she said there was "no emotion left," and "I've lost and must regain something."

The recovery was fairly rapid, was complete, and there has not been any sign of recurrence for eight years. Fortunately the patient was put into contact with constructive conditions, and a year after her discharge graduated from P—— Institute. The following letter deserves inclusion in the case-report, since it shows how tactful handling succeeded in overcoming the sense of inferiority:

"On this Thanksgiving Day it seems proper that I should write and tell you how I am faring, so much better than I had hoped when I last talked with you. Then I was preparing to go to —— to take a position with ——, a woman who, through my sister, had become interested in me. I did not think I could carry on the work through the summer, but as it seemed advisable to my family and also to yourself for me to try it, I did so. I found long hours and a great deal of work attached to the preparation of three meals a day for from three to six

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boarders, besides three separate meals for the family and helpers, from four to seven persons. The daughter of the house helped when necessary and the mother sometimes, but before many weeks had passed they began to remark upon the improved order of the kitchen and how I had learned to avoid unnecessary work. At times things went wrong, but these people were very patient and helpful, seldom criticizing, always noting improvement. Mrs. —— would make me talk sometimes, and when I spoke depreciatingly of myself, she would answer, 'What you do speaks so loud, that I can't hear what you say.'

"She is personally acquainted with some of the managers of —— Institute here in ——. Perhaps you know of the place, very much like —— in ——, giving practical courses in almost every subject you can mention. There is a one-year course in institutional household sciences, and this, upon application of Mrs. ——, they recommended for me. It prepares for the work of matron, professional housekeeper, lunchroom manager, or dietician by giving instruction in chemistry, physiology, dietetics, principles of cookery, institutional problems, accounts, marketing, lunchroom work, laundry work, house-furnishing, care of the house, serving and physical training.

"My sister's very substantial rise in salary and her employer's kindly offer to stand ready to assist, making it financially possible, the persistence of Mrs. —— and her confidence in my ability, opposed to my utter lack of confidence, led me to undertake the course, though in a very half-hearted way. Mrs. —— had written several times to the Director of the School of Household Science and Art of the Institute, and also to the Registrar, a personal friend, concerning me, as a result of which I was received and welcomed very cordially.

"The Institute has no dormitories, and as a consequence, all the houses in the vicinity, most of them at least, are filled with roomers or boarders. I am a roomer here, with three other girls, the mother of one of them, a school teacher, and another woman. Our two maiden landladies take a kindly interest in their 'family' and the place is quite homelike in its atmosphere. They tell me I just fit into the place of a former student in my course, of whom they became very fond. The young art student rooming next to me says she has adopted me as a sister, and some of my class-mates are glad to come to my room or to invite me to theirs for help in their studies. They think I know a great deal. In fact I am tutoring one of them. I was one of four out of forty who passed the preliminary examination in arithmetic. The results were not made known for three or four weeks, when we were somewhat acquainted, and I received a real ovation from the class when it was known that I had passed. I have gained a reputation of having chemistry before, which I never did, and have received notice from two of the best educated women in our division of twenty students that I must never again dare answer correctly a question that has passed them, on penalty of meeting them some dark night!

"You know, I trust, Dr. ——, why I mention these things. Because they seem so far away from the experience I am trying to forget. My mind is not even now what it should be, and sometimes I have dreadful dreams, but I can sleep from the time I put away my books, usually eleven or after, until daylight, even with an 'elevated' passing my open window. I eat a hearty breakfast and a good dinner with a light lunch at midday, and am, to all appearances, well and strong, though sometimes annoyed by aches and stiffness in elbows and knees. My weight when I went to —— was 94 lb., when I came back ill, and I do not think I have lost much since September.

"I trust I have not taken too much of your time with this long letter. I really had not the heart to write once a month, but perhaps this will answer for all. If Dr. —— is still with you, will you give her my regards? Thank you both for all the interest you have taken in me.

"Sincerely,"

The patient has had two good positions since 1916 and is doing well in every respect.

DISCUSSION.

This case may be said to illustrate the unfavourable diagnostic and prognostic opinion which may result from an effort to place every individual into one of the established symptomatic groupings.

On such a basis there were two possibilities—dementia præcox and manic depressive. The clinical evidence, particularly the apparent absence of real affect and the systematization of the delusional theme (which cannot be reproduced in an abstracted report) was somewhat in favour of the former. Incidentally, it may be remarked that vocal expressions such as " no emotions left " and the like, used by this patient, may really be an index of considerable underlying emotional activity which is masked by the logical sequence of the notion of defect, imparting to the conduct an indifference or failure to react proportionately. Finally, the delusional conception represented a kind of inverted reference idea, *i. e.*, the environment was being harmed by the patient and not *vice versâ*, as is common in schizophrenia.

There is another way of looking at the psychosis, apart from the standpoint of conventional diagnosis. In a sense it was the psychotic representation of the struggle against inferiority. No psycho-analytic interpretation is needed to understand that such productions as " I felt the influence lived in me," " the people I like I grip, and they can't get away, and they don't know what is the matter with them," "I affect all those people about me," " the highest characters are simple and dream-like," " I've a feeling of rising and thinking," are compensatory, symbolizing the attainment of power which was beyond reach in the pre-psychotic experiences and strivings. Thus the mental disease may, without too much effort, be regarded as an outlet which began after repeated failures " to find the keynote—to be successful and an idealist." May we assume that whenever, as in the patient under consideration, the psychotic content is merely the pathological expansion and outgrowth of an understandable life situation, which for a time at least had come to an *impasse*, there is a better chance of ultimate return to normality? Is the close alignment between a sufficient and real precipitating situation and the temporary satisfaction and solution of the difficulty by the substitution of unreality against the existence of a malignant psychosis?

Physical Pre-Psychotic History.

While the entire group of recovered patients were rather heavily burdened from the standpoint of pre-psychotic organic morbidity, yet there was only a single instance in which a pre-psychotic somatic factor more or less directly influenced the prognosis:

The patient had early acquired deafness and was mute, and it seems likely that the sensory defects with the consequent inability to express emotional life and react to environmental contacts according to ordinary standards gave an aspect of malignancy to the psychosis. The psychosis had a duration of almost

eight months. For the greater portion of the time she was dull and unemotional. Otherwise the affective expression was limited to a peculiar shrill laugh and occasional crying spells, both apparently unrelated to behaviour. The characteristics of the latter were primarily inactivity, with the following variations from time to time; moderate cerea, mannerisms such as wagging the head to and fro with simultaneous protrusion of the tongue, grimacing, stereotypy of movement, seemingly purposeless motor excitation with aimless running about and destructiveness, or beating her head and blindly striking her hands against the iron porch screen. Often, and seemingly without stimulation from the environment, she would emit a series of short, sharp sounds like the bark of a dog. She was usually untidy. She did not refuse food, but first smelled it and examined it carefully. Only rarely did she appear to be in touch with her surroundings, once when she took the physician's stethoscope and placed it in her ears, and again when she tried to tease another patient, or when she looked at magazines.

Recovery as far as could be ascertained was complete, and for three and a half years the patient has been "the same as before the attack."

Precipitating Situation.

"Precipitating situation" is perhaps a loose term. It may erroneously be regarded as having chiefly a chronological bearing, and as being composed only of the detrimental somatic and psychogenic conditions which immediately preceded the psychosis. However, to students of what may be termed "analytic psychiatry" it has a somewhat broader meaning. They are inclined to think of mental disease in terms of destroyed resistance, usually the end-result of a series of destructive influences, which may be hereditary, environmental, psychogenic, or physical, sometimes in pure culture, but more often in various combinations. It is these factors, alone or combined, which constitute the precipitating situation, and though they may be acutely developed, they are still more apt to be insidious and gradually accumulated.

It is, of course, recognized that resistance to mental disease is an extremely variable quantity, and at times even the most insignificant thrust suffices to upset the equilibrium of an individual, who then might be designated constitutionally unstable. A valid basis of comparison concerning relative severity or precipitating situations is difficult to find on account of individual dissimilarity of viewpoint, but in a general way there is enough agreement to distinguish, at least, between intrinsically significant and trivial pre-psychotic circumstances. We believe, after careful perusal of the histories of the 38 patients, that 23, or 60%, were subjected to situations which were adequate for the precipitation of the psychoses. It is interesting to note that the percentage of significant situations was quite high in our series of recoverable "dementia præcox" reactions, but one of us found in 100 dementia præcox cases only 20 in which there were significant or important circumstances favouring the occurrence of the psychosis.

However, we are principally concerned with the attempt to trace

a connection between the outstanding elements of the precipitating situation and some of the malignant-like features of the symptomatology. A patient, for instance, who was but poorly equipped to meet the exigencies of hard reality, found herself illegitimately pregnant. Resort to criminal operation did not remove the need for secrecy, and only complicated matters by the addition of certain sequelæ, notably septic infection. During the mental illness it was the silliness, grimacing, flippancy, evasiveness, obviously superficial laughing and weeping, etc., which were construed as indications of underlying affectlessness, or at least of emotional inadequacy, and which gave point to the gloomy prognosis. On the other hand, these manifestations probably represented the pursuance of a childlike method of concealment, and the apathy may have been more apparent than real.

In at least two patients the precipitating circumstances included a strong emotional stirring. One, after an anticipatory period of worry and apprehension, had to face the sudden death of her mother, enforced separation from her husband, and a number of incidents calculated to acutely raise the fear state to a dangerous height (uprising of natives in Haiti, discovery of snake and tarantula). There were associated and no doubt resultant physical phenomena—menstrual irregularity and loss of weight. The other patient, possibly handicapped against the endurance of affective strain on account of her race, was subjected to constant worry and fear because her father, brothers and sisters were caught in the war zone of German occupation and she had no word from them. During the apathetic (?) stage of the psychosis she lost 22 lbs., or almost one-fifth of her entire body-weight. In the first, among the psychotic symptoms which contributed in greater or less degree to the notion of malignancy, were listlessness, indifference, stupor, catalepsy, mutism, and early an active paranoid delusional trend; in the second were catalepsy, cerea, brief stuporose states and vague paranoid delusional formation. In neither instance were there any convincing signs of retained affectivity.

Since in clinical psychiatry prognostic inferences are often so dependent on an accurate estimate of the emotions, it is unfortunate that we are limited practically to crude observation for our judgment. In spite of the splendid advances of experimental physiology, there are still many gaps to be filled, and further, there is the great discrepancy which results from the effort to apply the knowledge gleaned from animal experimentation to human beings. However, without reviewing at any length the contributions of physiology, we know in a general way that an emotion is always translated into physical concomitants, that these may be roughly divided into

stimulative and inhibitory, that not only the musculature but every organ and cell of the body is involved in the process, that these somatic accompaniments may prolong the affective state, and that the link connecting the psychic and the bodily phenomena is highly complex, but probably has as an important element the several units of the endocrine apparatus. The very incompleteness of our information should lead us to employ caution in pronouncing deterioration of affect, simply because there is some species of catatonia, exhibited particularly when there is the history of unmistakable antecedent emotional stress. Hoch's conception of benign stupor is the psychological portrayal of death. Although there must have been at some prodromal point considerable emotional life, the primary element of the stupor itself is absolute affectlessness, and yet there is always a hopeful prognosis.

Likewise in two other patients a careful scrutiny of the precipitating circumstances might have provided somewhat better prognostic indications. They had paranoid delusions. In one, their content was directly related to some of the component material of the predisposing factor (being an alien enemy), and in the other a chain of psychic and somatic assaults (worry, fear, overwork, pregnancy, influenza) induced pathological fatigue, which lessened inhibition, so that an accidental episode just before the onset of the attack (reading of luridly coloured and fantastic detective stories) was carried into the psychosis bodily and furnished the text of the persecutory beliefs.

In one patient the precipitating situation was corrected before the mental illness terminated. She was assured by the family that the man who was responsible for her illegitimate pregnancy was anxious to marry her, and thus a future satisfactory social status was insured. The elements which contribute to recovery or chronicity in a given case are always immensely complicated. A psychosis is after all the culmination of a life-long reaction between an individual and environmental circumstances, and there may be at hand unsuspected resources, recent or remote, innate or extraneous, which either favour readjustment or make it impossible. The same thought applies to purely physical disease. For instance, in pneumonia, recovery or death may hinge not so much on the virulence of the infection, as on the integrity or vulnerability of the circulatory system. In turn this may have been predetermined within certain limits by habits of living, or perhaps by the occurrence of a severe contagious disease in infancy, or even by congenital valvular defect. This may seem like overmuch theorizing about a mere detail, but it is in doubtful psychoses that exact appraisal of details may diminish the margin of the prognostic error.

The physical aspects of the precipitating situation as well as of the onset deserve discussion, but since they are likely to produce the same general effect, they may be more advantageously viewed retrospectively from the vantage ground of the psychosis.

Onset.

The question of onset is complex. Historical information generally must be obtained from the family, and usually the patient's relatives are neither trained observers, nor in the frame of mind which is consistent with careful observation and description. Furthermore, mental disease is seldom precipitate, and there is almost always a varying period of incubation not openly manifest. However, there is an instant when objective signs of abnormality come to the surface. It is in the character of these initial symptoms and the violence with which they impinge against the conventions and customs of familial and social environment that judgment of acuteness of onset or gradual development depends. By such a criterion the psychoses in 68% of our patients had an abrupt onset. Perhaps no index of prognosis may be taken from this finding, other than that in a general way there is a greater likelihood that a benign psychosis will be abruptly initiated and a malignant one will be evolved more slowly, and for a longer time the individual will conform in some measure to ordinary and superficial environmental requirements. Barrett looks on an acute and stormy onset as a favourable prognostic omen, feeling that it represents the struggle of the personality against the acceptance of psychotic material.

The period immediately preceding or coincident with the first obvious symptoms is extremely critical. It may be assumed that inhibition is enormously diminished and the individual is susceptible to outside influences, often accidental. This seems to be borne out, at least by some of the affective or benign psychoses, in which a great mass of the psychotic material is apparently drawn from chance events. Hoch found that the evolution of the mental picture is subject to considerable variation, "which is dependent partly on the causative agent and on the environmental factors, and it is occasionally given a certain twist by accidental suggestions or happenings of an emotional character."

In two patients external happenings at or just before the onset seemed to influence adversely the direction of the symptomatology:

In one instance, just before the illness, the patient, while profoundly fatigued, read a series of fantastic detective stories, which later were an almost literal part of the psychotic content and gave a strong paranoid præcox trend to the whole

reaction. Here there was an unusual degree of bizarre delusional expression. "Violet ray," "poisoned food," "throwing off gas," "white slave," "dictaphones," "germs," frequently recur, or "poison daggers being shot," "ivory arrows shot into the brain to cut off the nerve-endings," "celluloid pledgets driven into the brain with high-powered violet ray," etc. In the following there is a suggestion of splitting, "an influence pulling my thoughts away," and "he has gotten the velocity of my mind which must be the same as his own." As has been stated, this highly coloured material was directly drawn from the detective stories of Arthur Reeve, which the patient read with great interest just at the time when the break from reality occurred.

In the second case the patient, who was superstitious, was treated by an ignorant charlatan during the transition stage from sanity to unreality He massaged the patient, hypnotized and baptized her, and among other things told her of spirits of good and evil, exhorted her to sleep with her head to the north, and warned her never to let anyone give her an hypodermic, as it would be fatal. During the psychosis she was restless, followed her mother about in an aimless fashion, stared vacantly into the mirror or at anyone who spoke to her, and became excited and resistive, biting, striking and expectorating. She attempted to convert those about her, quoted from the Bible in a desultory way, frequently assumed an attitude of prayer and was often mute. Angels of happiness and spirits of evil were seen, and mysterious tappings on the window, the voice of the devil and the conversation of the Deity (to which the patient listened attentively and smilingly) were heard. There was possibly at this time an undercurrent of depression, and letters were written to relatives asking forgiveness for wrongs which she had committed. A paranoid trend and reference ideas became prominent. The family were leagued with the evil spirits and people were talking about her and laughing at her. Food was refused, and both it and her clothing (which she removed and then stretched herself out nude on the floor) were poisoned. She protested that she was being kept in a house of prostitution.

Nine months is a maximum estimate of the duration of the psychosis. On the day of admission she appeared "toxic" and catatonic and opposed passive motion. Next there followed a resistive, noisy and destructive phase. Then she began to hide under tables and beds, and when pressed for an explanation said, "Just funny stunts." Clothing was removed; there was refusal to dress. When clothed, skirts were arranged to resemble trousers. She let her hair down, or danced, bowed and smiled in manneristic fashion and without traceable relation to environment or situation. Somewhat schizophrenic was an attempt at suicide (?) without any signs of depression, by suspending herself from the wrists, utilizing a portion of a curtain and the chain from a toilet tank. She would stand and look directly into the sun until her eyes became extremely bloodshot. There was no sustained production or conversation. Once she talked at random about "the blue and the grey," and again resentfully about her straight hair, which she braided in an effort to make it curl. A slight tendency to self-adornment was noted. At times she prayed loudly, asking forgiveness for those (her family) who had treated her badly. By every criterion of objective examination the affective reaction was *nil*. In the daily notes she is described as displaying a silly smile and was inaccessible. On a single occasion she accounted for the habitual smile by answering, "Just dreaming—everything comes like a dream." There was illogical affectivity even in the restricted sense of Hoch, and the silly grin with which she replied to queries concerning the suicidal (?) attempt. In the beginning she gave the impression of haziness, confusion and disorientation, but later was clear and placed herself correctly. Memory, recent and remote, was not disturbed. She referred to her lover, and made an illuminating comment on the "will-power doctor" —"He made me all funny—out of my mind—crazy—the more treatment he gave me the queerer I thought he acted." Hallucinosis did not reappear. Delusions came to the surface only for a few days following admission ("poison in food" and refusal to eat).

Is it not thinkable that a considerable portion of the dementia præcox behaviour was perhaps traceable to the suggestions implanted at the critical time of onset in a superstitious mind?

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Toxicity and Exhaustion.

Our knowledge of the limits of the results which infection or bodily and nervous depletion may produce is very vague. The psychosis which might be viewed as a symptomatic prototype is infection-exhaustion psychosis (psychosis with somatic disease), and yet, even here, apart from the classical deliria the clinical ground is very uncertain. Manic-depressive insanity of severe grade is at times practically indistinguishable from infection-exhaustion mental disease (psychosis with somatic disease). Occasionally, too, dementia præcox bears a close resemblance. Mott believes that all psychoses belong to one group and are genetic in origin. While this is hypothetical and somewhat extreme, nevertheless, clinically, "states of infection and exhaustion may complicate any psychosis, producing a confusion engrafted on the original mental disorder." Still, the consensus of opinion would seem to be that although there is a considerable deficiency of attention and interest in schizophrenia, the patient is apt to be surprisingly clear and oriented concerning that which he really perceives, so that the state of the sensorium is a prognostic consideration which should not be neglected. Of course there are degrees of clouding of consciousness. Sometimes it is very slight, and indeed the patient may even seem clear, only to refute the clearness during convalescence by recalling a distinct feeling of mental diffusion and thought difficulty, so "that they could not sort out the real from unreal." All this uncertainty leads us to seek additional aids in attempting to establish or exclude the existence of toxicity or exhaustion in our patients. This is prognostically an important issue, since the mental symptoms they produce may make any psychosis more complex, and, more specifically, as seemed true in some of the instances reported, these added mental symptoms may cover or disguise affective signs and give the psychosis a malignant appearance.

A partial list of symptoms which occurred at some stage in our cases and which may be witnessed alike in both dementia præcox and in disorders and syndromes ascribed to intoxication or pathological fatigue is as follows: Some degree of sensorium disturbance, disorientation, auditory, visual, olfactory and gustatory hallucinosis, paranoid delusional formation, incoherence, emotional instability, catatonia and stupor. If we are able to uncover in the pre-psychotic period, and more particularly in the precipitating situation, somatic conditions which might be expected to give rise to such symptoms, then we are spared the necessity of viewing them at once as elements of chronic and deteriorating entities. We

feel that we are able to do this in at least 50% of the patients. Furthermore, if in the course of the mental disease itself there are clinical signs of toxicity, then there is additional confirmation, even though these signs may not be definite enough to make it possible to name the concrete infecting agent. There was fever, decline in weight, anæmia, alteration in blood-pressure, purulent adenitis, thyroid toxicosis, apical abscess, amenorrhœa, Neiserian infection, leucocytosis, lymphocytosis, eosinophilia, albuminuria and other pathological urinary findings, etc. We realize that it would not be difficult to find numerous instances of unquestionable schizophrenia in which likewise there were antecedent reasons for the development of toxic manifestations and somatic accompaniments during the mental illness, but nevertheless it is probably more than a coincidence that both these should be so prominent in a group of recoverable "dementia præcox" states, and finally, we feel that their presence should stay pronouncement of a bad outlook, if either at the onset or at some later stage the psychosis has some of the characteristics of an affective reaction.

Catatonia.

Some exhibition of catatonia occurred in practically all of the cases. This in itself is not remarkable, since the symptom catatonia, originally regarded as a motor or muscular phenomenon, in line with its derivation (κατατείνω)—to stretch tight—has been continuously expanded, until now it is made to include a variety of behaviour abnormalities such as mutism, scolding spells, impulsive violence, refusal of food, stereotypies, etc. However, marked and more or less pure catatonia, either in its positive or negative phases, appeared in 18 of the 38 recovered patients. Even before Kirby's contribution established the fact that catatonia occurred frequently in emotional psychoses, psychiatrists were beginning to realize that its occurrence did not necessarily spell dementia præcox, although many felt that the idea still persists to some extent, that when it is present it constitutes an ominous prognostic sign. Catatonia is not peculiar to any psychosis, nor indeed is it restricted to the field of psychiatry. It occurs not only in dementia præcox, but in all the so-called functional psychoses, and in hysteria as well as in epilepsy and paresis. It has been reported in organic brain disease, abscess, tumour, cerebellar lesions, in epidemic encephalitis, in typhoid fever, pneumonia and acute infections and in toxic and exhaustive states. In spite of its wide distribution, there has been a tendency to interpret it solely as a psychological mechanism. It is conceivable that "catatonia," or symptoms which simulate it so

closely that they are indistinguishable from true catatonia, may arise from a number of factors, and the unravelling of these may give prognostic help. In our series of cases it was suggested that the development of catatonia might have been favoured by racial and familial traits, pre-psychotic personal attributes, precipitating situations and extraneous conditions at the time of the onset. Finally, in a number of instances there is reason to believe that the " catatonia " was a direct expression of somatic toxicity.

Since the consideration is important, and since it exemplifies a number of similar reactions, we feel it is advisable to quote this illustrative case:

An Irish-American Catholic girl, 20 years old, who had a parochial school education and was a saleswoman in a shoe store. She is one of five children. The father died of " stone-cutters' tuberculosis," and at the time of the onset of the psychosis the mother was in a public hospital suffering from a " depression." The patient was social, good-natured and popular. The ordinary diseases of childhood were not important, but acute articular rheumatism at fifteen in all likelihood produced permanent heart damage.

A circumstance which may have favoured the development of the psychosis was worry and grief over the mother's mental illness. It should also be noted that the first menstrual difficulty which the patient ever experienced was associated with the period immediately preceding the mental disease, menses being delayed and painful.

The onset was abrupt: an outbreak of vocal activity, which was hard to follow since the ideational elements seemed wholly detached from each other—the mother was dead; the patient herself was to be married; a stranger was trying to dope her and carry her away. She was a single day at a general hospital, and had to be removed because she was too noisy. During a stay of 18 days in the municipal psychopathic hospital she was " noisy, incoherent, disoriented, combative, silly," and was diagnosed dementia præcox. It became necessary to remove her to the medical wards on account of threatened collapse. Under our observation for six weeks, she gave an almost classical portrayal of catatonic excitement. The patient was noisy, screamed, was resistive, struck, kicked, and bit anyone who approached her, broke glass, threw herself on the floor, knocked her head against the wall and was hopelessly untidy. There was also mutism, and well-developed negativism. Grimacing and mannerisms were displayed. Complicated fixed postures were assumed and long maintained; for instance, the left leg was extended at full length, with the right bent at the knee and crossed posteriorly at right angles. At the same time the left hand was held over the occiput and the right upward with extended palm. Both the expression of thought and of affect were widely separated from the behaviour and from each other. The former was wholly incomprehensible and uninfluenced by questioning or external stimuli. It was disassociated, profane and occasionally neologistic. The following production, which was shouted without any evidence in facies, body attitude or tone of voice or any feeling is rather typical: " Pick out my eyes—go kill me—nail me to the cross—you are brutes—that's it, cut my head off—I must die—you for the electric chair—you are one of the gang—the last for the electric chair—you are going to hell—there you stand looking at me—I am going to die." Usually, however, there was less connectivity—" just blue—Vermont—not too many cakes either." Manifestation of emotional stirring was lacking; there was only silly smiling or apathy. The patient was scarcely accessible enough to permit of any valid judgment concerning consciousness. It could be determined that memory was not interfered with. Probably there was partial disorientation for time and person; the latter perhaps related to the fragmentary paranoid delusions. There was hallucinosis, " death bells," " shadows of her own ghost," and once a reference to a " gas " odour.

It was somewhat difficult to approach the patient for physical examinations, but from information gathered from time to time a fairly adequate estimate was

obtained. She looked anæmic and was poorly developed. There was a loud mitral systolic murmur. A broken-down cervical gland discharged almost continuously, and it may have been tubercular, since the lung findings were suspicious and there was a lymphocytosis of 38%. An eosinophilia of 5·6% was noted. A maculo-papular eruption gave a culture of staphylococci—*albus* and *aureus*. Blood-pressure—systolic 108, diastolic 70. A dozen thermometer readings failed to reveal fever.

The patient recovered exactly five months after the onset of the psychosis, and as far as we are able to determine has remained well for seven years.

DISCUSSION.

In spite of the recovery, the unanimous staff diagnosis of catatonic dementia præcox was justified, according to the canons of strict clinical psychiatry. It is obvious, however, that the somatic factor was underrated. The patient certainly had heart disease, and was depleted and possibly had phthisis and other infection. Catatonic reaction types to organic disease have often been observed, and this possibility is of considerable prognostic importance.

It is probable that in the analysis of the entire pre-psychotic life, together with a careful consideration of both psychic and somatic aspects of the psychosis itself, we may find more reliable prognostic guides than those which are afforded by confining our attention to the intrinsic nature of the catatonia.

Stupor.

Stupor, either deep or partial, was noted in 7 patients. We did not find it as useful prognostically as we had anticipated. Its characteristics as an isolated reaction are sometimes deceptive, and it is almost always necessary to consider it in its relations rather than separately. Undoubtedly there are frequent typical deep stupors such as Hoch has described, the cardinal symptoms of which are: (1) More or less marked interference with activity, often to the point of complete cessation of spontaneous and reactive movements and speech; (2) interference with the intellectual processes; (3) affectlessness; (4) negativism and, further, it is no doubt possible to make out the portrayal of the death idea. However, the syndrome is by no means constantly clear-cut, and there may be a breaking through in one direction or the other, even with suggestive præcox-like behaviour, but unless there is schizophrenic evidence apart from the stupor, it is unsafe to decide too certainly against the chances of recovery. Hoch's study of stupor has advanced psychiatry even though he was not able to formulate an exact clinical rule. However, to remark that the possibility of an organic ætiology of stupor was too lightly dismissed does not seem to be an unfair criticism. Naturally there are cases of organic brain

disease, tumour, abscess and the like or head injury in which no question can arise, and these Hoch clearly recognizes, but there are also toxic conditions which are less specific and which produce stuporose symptoms, difficult to distinguish from so-called benign stupor. Hoch admits that a close resemblance exists between the stupor which he considers benign, psychogenic in origin, and a part of manic-depressive psychosis and post-rheumatic stupor. On the authority of Knauer, who has studied the latter, the presence of illusions is cited as a differential feature. This constitutes somewhat slight proof. Recently one of us observed a stuporose phase appear abruptly during the course of a severe osteomyelitis. It has all the signs of a benign stupor—inertia, affectlessness, suspension of intellectual functioning, etc., and from the setting of its onset obviously represented for the patient the concept of death—but neither was it preceded or followed by any reliable symptoms of depression. Unfortunately, in presenting the physical manifestations of stupor Hoch had to depend on old case-notes, in which "records of the physical symptoms either were not made or were lost in many cases." It is regrettable that these omissions could not be rectified, as the inadequate physical examinations scarcely parallel the splendid and comprehensive mental studies. For instance, the blood-cells were counted in only five patients, and there were only two blood-pressure readings. Four of the five revealed significant leucocytosis, 23,000 (91·5% neutrophilic), 12,000 to 15,000 (89% neutrophilic), 15,000 (no differential), 17,500 (no differential), and one had 41% lymphocytosis; the blood-pressure in two patients was systolic, 110 mm. Twenty-seven of the twenty-eight typical cases had fever; twice the temperature was 103° F. and once 104° F. Stockard supplied a somewhat ingenious explanation, in which the fever is traced by a series of steps—failure of heat loss function, imbalance in the involuntary nervous system, insufficient circulating adrenalin—and finally reduction to the chief component of stupor, namely, apathy. Hoch remarks that "the subject is so involved and the evidence so inconclusive that observers will probably interpret the phenomena here reported according to their individual preconceptions." With such a viewpoint, from the analysis of our own material, and with the question of prognosis in mind, we feel that while there may be classical instances, yet it is difficult from an observation of the stupor itself to determine whether it is surely benign or malignant, and further, there seem to be border-line reactions revealing a commingling of psychic and somatic symptoms, possibly ascribable to a mixture of psychogenic and organic causes, and having a relatively good outlook.

The Psychosis as a Total Reaction.

Finally we wish to emphasize the fact that in many of our cases, and strikingly in some, the psychosis appeared probably because detrimental circumstances had made reality no longer desirable or tenable for a particular individual. For instance, one patient only succumbed after years of struggle against a rigidly unyielding, ugly and hated environment. Another, after many years, succeeded in breaking away from a home in which she was "dissatisfied, unhappy and overworked," only to be recalled from the first congenial and happy existence she had ever had by the death of her mother, and the impelling force of a sense of duty toward her father and brother. A third, an only and spoiled child whose every wish had always been anticipated, became psychotic when she found herself in a situation which she could not control—namely, an illegitimate pregnancy. A fourth was faced by the same *impasse*, finding herself at forty also illegitimately pregnant as the termination of a love affair, and with the knowledge that the position which she had laboriously gained in the business world would be lost. In a fifth the psychosis was a method of leaving behind reality which was no longer bearable, and which was made all the more undesirable by an overwhelming sense of inferiority; and in a sixth there was remorse concerning illicit intercourse and ever-increasing apprehension that illegitimate pregnancy had resulted. It seems to us that the test of a "situation" psychosis, that is, one which constitutes an escape from a reality that presented problems which could no longer be solved, is the appearance in the symptomatology of phenomena which correct the hard and uncompromising facts of reality. This was obvious in the psychotic content of these six patients. When this occurs, there is reason to be somewhat optimistic as to the outcome, even though the clinical syndrome at first glance may appear to be malignant in type.

CONCLUSIONS.

1. Thirty-eight cases diagnosed as dementia præcox, but terminating in recovery, were analyzed from the standpoint of potential prognostic indications occurring either before or during the attack of mental disease. The chief considerations were race, history, both familial and personal, personality, pre-psychotic somatic state, precipitating situation, onset, and the psychic and physical phenomena of the psychosis itself.

2. Racial or ancestral traits do not determine to any significant extent the presence of symptoms which bear a malignant aspect,

although clinical error may result from our inability to gauge correctly and to interpret habitual modes of reaction in an alien or unfamiliar people.

3. Heredity occasionally exerts an indirect effect, and the previous existence of chronic mental disease in a parent may apparently create an environment from which a benign psychosis in the offspring may take some of its unfavourable symptomatological aspects.

4. A close study of the personality is often fruitful and furnishes helpful prognostic guides. It is important to differentiate between a basic and constitutionally seclusive make-up, and one in which the withdrawal from socialization constitutes for the individual a somewhat logical defence and protection against definitely inimical surroundings. Catatonic manifestations during the psychosis may be occasioned by the reappearance of deeply ingrained dispositional "stubbornness." Abnormality of personality in itself is not pure evidence of chronicity, and a psychosis which seems prognostically unfavourable may be given, falsely, such an appearance by determining pre-psychotic idiosyncrasies of character. If the psychosis is in some sense an evolution of such peculiarities and no deterioration of personality is implied, the outlook is not necessarily hopeless.

5. Rarely sensory deprivation due to organic disease may influence the behaviour during the psychosis so that it seems bizarre and malignant, unrelated to affect. In reality this reaction may be the result of organic handicaps or defects which prevent emotional expression from reaching the surface in a recognizable and understandable form.

6. The precipitating situation needs to be considered in regard to its intrinsic seriousness, its somatic and psychogenic elements, its acuteness or chronicity and the possibility of its correction. If the precipitating situation is innately significant and the psychotic content reflects its component factors, then the psychosis may be benign even though the symptoms in themselves have a somewhat sinister aspect. It is possible that strong affective features in the precipitating situation may condition the occurrence of seemingly affectless catatonic phenomena in the psychosis.

7. The transition stage from reality or sanity to unreality or mental disease is an extremely critical period. Inhibition is decidedly lessened, and extraneous, accidental happenings may be deeply impressed and later elaborated into apparently malignant symptoms. Other things being equal, an acute stormy onset is a favourable prognostic sign.

8. An affective display which is markedly at variance with the remainder of the psychotic content (the ideation and the

behaviour) or a notable insufficiency of affect ordinarily constitute criteria of chronicity. Prognostically, however, it is important to distinguish between the psychosis in which the emotional disharmony or paucity results from the unfolding of a fundamental disease process, and the one in which the apparent lack of alignment and emotional inadequacy are determined by independent factors not concerned with the basic mechanism of the psychosis. Various factors may contribute to such an appearance of emotional dissociation or incompleteness. In our group of cases a childhood habit of evasion, previously determined organic deficiency, the influence of a personality steeled against any display of feeling, "paralysis" of physical expression, movements, etc., served to modify or distort the affective display.

9. Toxicity or exhaustion may complicate a benign psychosis and impart to it a deteriorating guise. For instance, this may result when affective expression is masked or distorted by intercurrent clouding of consciousness. Both the pre-psychotic life and the psychosis should be carefully scrutinized for evidence of infection or bodily depletion.

10. Catatonia has a widespread distribution and is not peculiar to dementia præcox. It may be a response to toxicity, and it then admits of a hopeful prognosis. Furthermore, it may simply be the result of an ingrained reaction pattern in a personality whose chief characteristic is stubbornness.

11. There are stuporose states, complete or partial, which do not meet the clinical requirements of benign stupor, and yet they need not be looked upon as infallible signs of deteriorating process. The stupor, in itself, does not furnish a safe prognostic indicator, and it must always be considered in its relations to the entire psychosis. We feel that the influence of somatic factors was not hitherto properly weighed in the delineation of so-called benign stupor.

12. When the psychosis as a total reaction constitutes an escape and psychotic correction of serious circumstances in life which have brought the patient to an *impasse*, then the prognosis may be favourable even though the clinical aspects are not promising.

13. Careful study, not only of the actual mental symptoms, but of all the antecedent factors which may have been influential in moulding or complicating the expression of the psychosis and their proper evaluation, should tend to reduce the margin of prognostic error.

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