*A Hypothesis of the Mechanism of the Functional Psychoses.**

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IN the organic and toxic psychoses in which a symptom syndrome is known to be associated with gross brain changes or a definite toxin, it is hard enough to correlate the physical and mental. As McCurdy writes (1): "To find what cell change corresponds to the delusion of having a ship full of rubies is much more of a task than that of looking for a needle in a haystack." In the case of the so-called functional psychoses—schizophrenia, the manic-depressive psychosis and paranoia—this difficulty is enhanced. It is only possible to treat the matter in the broadest manner, by considering the reaction between the organism and the environment.

The study of the human organism cannot be separated from the study of the personality, and closely linked with this are purely physical factors, such as endocrine balance and general bodily health. Such workers as Jung, Bleuler and Kretschmer have demonstrated that the introvert or schizoid type of individual is particularly liable to develop schizophrenia. It thus seemed of interest to examine the personalities of subjects of the other functional psychoses—on the assumption of the personality being primarily at fault. For comparative purposes each personality was examined under the following purely arbitrary headings:

(1) Balance of instinctive tendencies.
(2) Strongly developed sentiments.
(3) Temperament: Sanguine, choleric, melancholic, phlegmatic, suspicious.
(4) Introversion or extroversion.
(5) Activity (2): Hypokinetic, mesokinetic, hyperkinetic.
(6) Intelligence.
(7) Amount of general information.
(8) Type of ideals.
(9) Strength of character (power of inhibition of instinctive tendencies).
(10) Power of integration.
(11) Physical condition and appearance.

By this means, although only an approximation of the actual make-up of the individual was obtained, a basis for comparison of

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different types was formed. Enough cases have not yet been worked on to justify the giving of findings. So far the schizophrenic would appear to be of weak character, phlegmatic temperament, decidedly hypokinetic and of normal or subnormal intelligence. The paranoiac, on the other hand, appears to be an "impracticable hyperkinetic," (2) and of an intelligence rather above normal. With reference to the manic-depressive make-up, the only generalization that has so far emerged is that the subjects are of an active type, with normal or supernormal intelligence.

Although only the broadest differences in mental make-up are indicated by a comparative examination of this nature, the necessarily different reactions of varying types of personality to similar circumstances is emphasized. It is suggested in the communication that, with the exception of certain types of depression, this is sufficient to account for the various symptom-syndromes described under the headings of "schizophrenia," "manic-depressive insanity" and "paranoia," the basic mechanism in all three forms being a withdrawal from reality. An attempt is also made to demonstrate that the actual *content* of the psychosis (*e.g.*, the form of the delusions) depends on the experience of each individual. In a paper of this length it was thought best to give an abridged account of a case of each of the three types of psychosis and to examine it from this standpoint.

Schizophrenia.

It is of most value to commence with a case of schizophrenia, of which psychosis Bleuler, Jung and many others worker have demonstrated the autistic basis.

Case 1.—Female, æt. 37, single; teacher of elocution. Dull; does not associate with others or converse spontaneously, but talks willingly and at length, expressing herself fancifully when questioned. She will suddenly cease speaking and look vacantly before her. She laughs without cause and often makes sudden and jerky movements, such as putting her hand to her throat. She is impulsive and strikes others without cause, or sweeps objects from the table. Her behaviour is directed by her phantasies, and is little influenced by her actual surroundings. She has many bizarre ideas, which she expresses freely but in an involved manner. The basic ideas are quite fixed, but she elaborates them with the passing of time in a very fertile fashion. She is constantly referring to a man under whom she studied elocution, and at each interview tells how he shook hands with her. There was a small, red-hot spot in the palm of his hand about the size of a dime. She experienced a curious pricking sensation, which set her body aglow.

She felt a " vibration " which passed from her head to her pelvic organs. She often remarks, " He gave me the word 'flesh' from his hand. He had magnetic power, I had electric, thus there was perfect union." She states that she "saw her presence in his arms." She feels he " still has it and has relations with it." She one day related how her sister-in-law accompanied her to a lesson : " Someone seemed to join us there. He was tall, thin, and had black hair and blue eyes. I think he threw E— (the teacher) into a strange state and he drew my spirit." Her sister-in-law went straight to the spot where this man had stood and " got the spirit of art." Asked who this man was, the patient said, " He was a spirit who joined E— and myself—a sort of spirit minister." She later referred to this once more, and said that from that time her sister-in-law started to absorb the " fused talents " of E— and herself. These entered into the child (a niece of the patient) who was afterwards born. She speaks much of the Immaculate Conception, and says physical union is not necessary for the birth of a child. Referring to her brother and his wife, she remarked, " I saw them in bed—the purest thing I have ever seen. I saw him caressing her, but all sex was aside. Their spirits seemed to fuse." She also speaks of " College men " frequently " hypnotizing " her and putting immoral thoughts into her head. They also " draw her vitality " from her.

I have attempted to make relevant and coherent extracts from a great mass of rambling and bizarre statements made by the patient. A case such as this is very superficial and self-evident, and it has been introduced to demonstrate how well the phantasies of the patient fit in with her special personality and experience.

In appearance she was decidedly ugly, with some exophthalmos. Her father was interested in exotic religions and earned a livelihood writing thereon. She was the elder of a family of two, her brother being some years younger. She was strongly sexed, vain, rather underactive, of weak character, but with an extremely strong sentiment (stressed on her from infancy by her parents) as to the desirability of living within the bounds of every convention, great or small. In spite of this she became pregnant in the early twenties. She explained this by saying she was hypnotized and assaulted. Her mother firmly believes in this. This explanation is very illuminating. It points to (1) a failure to face reality ; (2) a considerable amount of imagination ; (3) a certain childishness, in thinking that such a story would be believed ; (4) a simplicity on the part of the mother in accepting it (combined with the occupation of the father) would seem to indicate a tendency on the part of the family to evade everyday facts of life.

She has never earned enough to support herself.

Her psychosis is seen to be the natural outcome of the interaction of her personality with her environment. She obtains sex gratification which is missing in real life (she also masturbates considerably). What may be termed her "conventional sentiment" is satisfied by a "spiritual marriage." She goes further and has an imaginary family in the shape of her brother's child. Blended with this is the desire to escape from the hard fact of her own unfortunate pregnancy, so she develops a strong belief in Immaculate Conception—extending this to her brother's child. She will not face the fact that her inner thoughts are not spotless and attributes them to the malign influence of others.

The Manic-Depressive Psychosis.

Kraepelin points out that hereditary factors play their part in four-fifths of manic-depressive cases. He postulates a basic predisposition, which may be depressive, manic (buoyant and overconfident), emotionally excitable or cyclothymic. MacCurdy (1), writing of the causation of manic states, gives the chain of causes as (1) make-up, (2) situation, (3) precipitating cause. This precipitating cause may be: (i) direct opportunity for adult wish-fulfilment; (ii) veiled outlet for an infantile wish; (iii) plain infantile wish-fulfilment quickly distorted; (iv) distortion of a distressing idea into a "sublimation."

He points out, in opposition to the popular view that the emotion displayed in mania (*i.e.*, irritability and elation) is an expression of poor contact with the environment, that the patient becomes irritable when his flow of thought is interrupted. Campbell (3) attributes the onset of the manic attack to the subject's difficulty of adjustment, this difficulty being much less deeply seated than in dementia præcox. The flight into the psychosis coincides with the relaxation of efforts which are recognized as inadequate to deal with the actual situation. The cessation of the struggle permits the frank expression of repressed elements. In this connection Davenport's (4) proposal with regard to hyperkinesis is of interest. He looks on hyperkinesis as resulting from loss of normal inhibition and hypokinesis as due to over-inhibition. Beyond such reported changes as pigmentation in the cortical cells, (5) various "brain stigmata or focal lesions" (6) (anomalies of convolutions, etc.), a liability to satellitosis (7), or the postulation of such theories as that of toxins circulating in the blood-stream, there is little definite on the physical side.

Correlating these and similar views it is possible to obtain a concept of the modern trend of thought with regard to manic-depressive insanity. The inheritance of a predisposed or special

type of personality is generally accepted. This may depend on physical factors—endocrine balance, general health, etc. The onset of the manic attack is associated with a precipitating cause. The attack is an expression of repressed elements, consequent on the removal of inhibition due to the precipitating cause. The attack is a flight from reality, but the difficulty of adjustment is not as great as in dementia præcox. Influence on the activity of the endocrine glands by emotional states may result in bio-chemical changes, which produce various appearances described by pathologists.

Discussion of the depressive phase is postponed until the following illustrative case has been described.

Case 2.—Female, æt. 25; training for mission work. Admitted in a maniacal state. Overactive—flinging her arms about, laughed loudly and frequently without cause. Untidy—dress open, hair down. Talking constantly and incoherently. Markedly distractible. This was the third attack. Before the first attack she became abnormally religious and introspective. There was a period of mild depression, lasting several months, after the first attack. In the first and third attacks she was in a highly erotic state. In the second attack she felt she had communed with Christ, that she was a prophetess and that she had a miraculous power to convert people.

On the fifth day from admission she had quietened down and was able to discuss her condition fairly rationally. She was, indeed, spontaneously casting about for an explanation of her recurrent breakdowns. A full account of her history, extending from the time of the first attack, would be far too lengthy for the present purpose, and it is proposed to make a few relevant extracts from the mass of notes relating to her.

With regard to her personality, she was a girl of good appearance, intelligent, active, sanguine and with high ideals. She was very strongly sexed, but well-controlled, in spite of lack of strong sentiments about her calling or the conventions. Control was by direct repression, which was unpleasant to her.

With this make-up as the basis of the trouble, her difficulty appeared to be one of adapting her sex urge to the rest of her activities. Each of the attacks was preceded by events of great emotional import related to her sex life. An account of the circumstances preceding the first attack is given as an example. She was very attached to a man called Christopher, and he appeared to reciprocate her affection. They were young and ardent, but the patient said, "Christopher and I walked arm in arm. That is all. He was very passionate. We had bad struggles I wanted him

badly." In the end, however, he showed he did not love her and became engaged to another girl. Speaking of this the patient said, "You see, the first time I was very unhappy. I was ever so miserable before my attack. I 'kidded myself' and so became happy. In all my attacks I exaggerate the grounds for happiness."

A sample of conversation is now given, with her subsequent explanation:

"Don't forget the hint. The little baby is so sleepy. Well doctor, don't look so sad. We're friends. Shake on it—both hands. I didn't know. Well, never mind. I'm quite sleepy. Oh! My little stone is quite tiny, but maybe it will come out like a little worm out of its chrysalis. He let me go out the door first. That man is clever, so clever that he almost—whew!—I never thought I'd die. It would have been a red death in a milk white sea. (Telephone rang at this point.) Oh! let's answer it. It is so soft and sweet—it is mechanical—bing! biff! Oh!—I'm sorry dear (sighed). Lest we forget. (Smiled and made motion of kissing.) Perfect peace and a baby. . . . I'm not quite so dumb. I guess we had it in the right way. We have a nice little baby with us. Oh! my stomach aches (laughed). I wonder why they were put together with—ssss—and they kissed about it. It is too much when it comes to life like a lily. I always wanted to faint and never could. . . . Well, if they give me a chance like—who was it? Hiawatha—I might be born if you give me a chance. Oh, dreams come true. Mother of my children—four little babies—little babies feel sleepy. . . . We might be like the two fools in the play—two pink tickets—and they stood on their heads on the point of the needle. Make the cut. One little hole—like a doughnut."

This was gone over with the patient, and she was asked for any explanation she could give. Her comments are now recorded:

PHRASE.	COMMENT.
"The little baby is so sleepy."	"Christopher and I were going to have Jesus. We had had spiritual relations. Jesus was inside me."
"My little stone is quite tiny, but maybe it will come out like a little worm out of its chrysalis."	"This refers to the birth of the baby."
"He let me out the door first."	"A doctor in the hospital was trying to convince me he was a Christian."
"I never thought I'd die."	"I felt I had died for a few minutes. My pain was so great that I wanted to die, but had got to live for Christopher's sake."
'It would have been a red death in a milk white sea."	"Christopher and I were to be two prophets and martyrs and very innocent."
"It is so soft and sweet. It is mechanical."	"Having a baby."

PHRASE.	COMMENT.
"Lest we forget."	"That we were having the baby Jesus."
"I'm not so dumb. I guess we had it in the right way."	"Spiritual relations."
"I always wanted to faint, but never could."	"I thought I had had a prolonged faint."
"Well, if they give me a chance like—who was it? Hiawatha."	"I had a great desire to be a free child of nature like Hiawatha—to get away from control."
"Oh, dreams come true. Mother of my children—four little babies—little babies feel sleepy."	"Every time I had an enema I felt I had had a spiritual mechanical baby."
"We might be like the two fools in the play—two pink tickets—and they stood on their heads on the point of the needle."	"There had been a competition for an appreciation of the play "The Fool"—the winner to get two tickets. I had sent in a criticism. Christopher was like the man in the play, who was my ideal. In the Middle Ages people argued whether angels could stand on the point of a needle. I thought Chris and I were two angels."
"Make the cut. One little hole—like a doughnut."	"The cut to let the baby out."

Thus, in the short sample of the stream of talk recorded there are, according to the patient, references to :

Spiritual relations consummated with Christopher, three times.

Birth of a baby five times. The baby Jesus specified twice. (Christopher the father.)

The idea of death, to escape pain, twice ; a prolonged faint, once.

The idea of innocence (martyrs and angels), three times.

The idea of escaping control, once.

In this attack she imagined Christopher was her lover; they had had spiritual relations and she was bearing the baby Jesus. The conviction of innocence was held and she toyed with the idea of escaping from conventional control by death, fainting (insensibility), or becoming a free child of nature.

The desires which she satisfied in this attack (which was preceded by a short period of depression, during which her attention was focused on her many causes of misery) were :

(1) The complete fulfilment of her desire for Christopher, including sexual and maternal satisfaction.

(2) This was rendered compatible with her spiritual profession by naming the baby Jesus (*cf.* the manner in which Case 1 toyed with the idea of the Immaculate Conception) and by making the relations spiritual (also *cf.* Case 1).

(3) The idea of innocence was reinforced by imagining that she and Christopher were martyrs and angels and "very innocent."

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(4) She toyed with the idea of death as a means of escape from an oppressing environment (*cf.* Hoch's (8) work on *Benign Stupors*, mentioned later).

(5) She escaped from convention by comparing herself to a free child of nature.

Thus she satisfied her sexual desire, her desire to escape from the necessarily marked inhibiting influence of her theological profession and also from her mother's watchful control. She also blinded herself to the fact that Christopher had deserted her. Her attention finally was diverted from these autistic fancies and once more focused on the true facts of her life, when she once more became depressed.

Owing to considerations of space it is only possible to give this extract which seemed the most relevant. In the second and third attacks the patient satisfied similar desires.

In considering this case one cannot help being struck by the resemblances of some of the patient's ideas to those of the previous case. Both cases "feel the presence" of men. Both have "spiritual unions." In both cases the conception of the child is innocent. Both have thoughts put into their heads by others. Both are in conflict with their environment and both have strong sex urges. It is easy to conceive that the difference in the reaction—the chronicity and passivity in one and the acuteness and activity in the other—is due to an inherent difference in personality, the one predominantly passive, the other predominantly active.

However this may be, it seems clear that both have solved their conflict in a like manner, by retiring into a world of phantasy, where they roam fancy-free.

It is possible that one day a new classification of psychoses may arise from a dynamic standpoint, in which we shall not speak of schizophrenia or mania, but rather of a permanent or temporary autism, the reaction being determined by the personality.

According to Hoch (8), the mechanism in cases of stupor formation is not essentially different. The personality is again at fault. In the face of an unpleasant situation the patient loses energy, becomes apathetic and harbours ideas of death. Finally he retires into the stupor which represents death, *i.e.*, into another world, which appears to him a pleasant place.

Cases could be cited to show that in some patients who exhibit a predominantly depressive reaction, the depression itself represents the escape from reality (in contra-distinction to the depressive phases of the predominantly manic cases), the idea of death (*e.g.*, "I'd be better dead") being pleasant to the patient as an escape from reality. Connell (9), in a recent article, seems to put

forward this view, and also observes that depression is associated with vagotonia.

Paranoia.

The method of procedure in the study of this disease was to gain some idea of the personality of the patient, then slowly, and almost month by month, to go through his life-history with him from his earliest memories to the present date (which, of course, includes a very thorough account of his illness from the patient's point of view). This account was compared with one from outside sources. It is only possible here to give the very briefest summary of one case. Much controversial material is, of necessity, dogmatically stated by this method. Also the account is less convincing owing to the fact that it cannot be given in the patient's own words.

Case 3.—Male, æt. 44, single; clerk. The self-assertive and sexual tendencies of the patient are more marked than normal. Intelligence above normal. (He has an M.A. degree and has won several scholarships.) Hyperkinetic, impracticable. He believes firmly in the value of abstract knowledge; impatient of practical "spade-work." His power of inhibition of instinctive tendencies (character) was originally above normal. This has weakened of late. His mother represents for him the "ideal woman," and he judges every girl he meets with this idea in mind. He is of a suspicious temperament.

He has systematic delusions of persecution. Girls are speaking disparagingly of him. He has lived in various apartment houses, but people are always immoral in addition to being in league against him. He is convinced they have turned fellow employees in several offices against him. He has objected strongly to this, and used terms such as the following in reference to the offenders—"She has the ethics of a street-walker." In consequence he has lost several positions. He is convinced he has lost these positions by the machinations of his enemies. Before admission he complained to the police that a masseuse in the apartment house in which he lived had arranged a "frame-up" against him with some men friends who were a "tough lot." They were "threatening to castrate him." They might not mean to do it, but "You know what the psychology of the mob is." Thinking he was in real danger he claimed police protection.

In youth he was deeply attached to his mother and strongly influenced by her. He says he has never married because he has not found a girl to "come up to" his mother. He has indulged in sexual promiscuity, and has a low idea of women.

As MacCurdy (10) writes with regard to a subject of mother-fixation:

> "He cannot combine mental and sexual regard for the same person. . . . His real trouble is that for him womankind is divided into two classes—'mother' people and prostitutes. Having never learned accurately to objectivate his unconscious sexual motivations, any woman for whom he has respect is so direct a representative of his mother that a sex taboo hangs over her. If he tries to marry there is a domestic tragedy."

On the other hand, the patient speaks sorrowfully of his not having acquired a wife and family, and his single state is the cause of considerable regret.

The patient says he was engaged to a girl who was false to him. This was found to be retrospective falsification of memory, but serves to indicate the direction of his desires. He says he has had to give women up lately on account of their "rottenness." In point of fact many have lately refused his advances.

With regard to his work, he endured extreme penury in youth to gain a university degree and fit himself for social service. He also won many scholarships. When he actually undertook social work, however, he was far too impatient of every-day "slogging" at his job, and wished to revolutionize the work by bringing into play his own abstract ideas. In consequence, he quarrelled with successive authorities and threw up social work, thus wasting all his early efforts. During successive quarrels he showed a tendency to excape from reality in the following ways: (1) By marked sexual excess; (2) by alcoholism; (3) by planning a scheme of "democratic revolution," *i.e.*, altering an unfavourable environment instead of fitting himself to it. He collected a small nucleus of people as a "revolutionary committee." (4) At one time he placed himself in a new environment and took a post as a dish-washer, concealing his whereabouts from his friends. At the same time he indulged in sexual excess. He states he took this post to "study conditions among the working classes."

He afterwards obtained work as a clerk, which was so different from what he had set out in early life to do that he hated it. He explains this hatred by the rottenness, persecution and cheating of the persons with whom he works.

Thus we have a man in middle age who has failed in his aims in two directions—the formation of a family and the building up of a cherished scheme of work. On account of his mother-fixation he has a low opinion of women, and he is of an increasingly suspicious temperament. "At over 40 years of age he finds he is not as attractive to women as formerly." "Girls very infrequently accepted his invitations to theatres."

Havelock Ellis (11) writes: "There are times in a man's life when, in some cases, a recognition of a sudden turn in the road

enters consciousness with disturbing effect. In many cases, I would say, such a period occurs near the age of 38."

He has failed. He knows his intellectual equipment is well up to the normal level. He cannot realize the drag of his early fixation or the impracticability of his aims. He has worked hard and he has good ability. He is self-assertive. He decides the fault cannot lie in him; it must be outside himself. The ego gets satisfaction from this. The more the patient can convince himself of the hardness and unreasonableness of the world, the higher he rises in his own estimation. He has failed in his work owing to the cheating and conservatism of men. Women, as a sex, are frail and unworthy. That they repel his advances confirms his view. They are altogether rotten. He points out that he has to throw *them* up, not they him, and it is on account of their sexual lapses. He hears girls indulging in filthy talk and showing knowledge of perversions. Thus we have the foundation for the gradually increasing paranoid delusions.

The intricacies and involvements of the plot are easily explained. One thing leads to another, and the greater the ramifications of the plots against him the more balm to the ego, the less his feeling of responsibility for his own failure.

This patient was committed to a State Hospital, and he said he was so convinced of the correctness of his ideas that he would rather suffer detention all his life than go out under the protection of a friend or relatives.

In other words, the tension has proved too much, and the patient has taken refuge from it in the formation of a psychosis, which is shown to be perfectly in keeping with the trends he has shown all his life.

This possibility explains the chronicity and fixity of paranoia. Everything is comfortably settled for the patient. He is helpless against circumstances—a martyr in an unjust world. He has quitted the field of battle; conflict is no more. Were he to throw off the delusions he would have to face life again and admit his own imperfections.

Conclusions.

An attempt has been made to show that the mechanism in all the so-called "functional psychoses" is similar, *i.e.*, the real situation is intolerable owing to the non-satisfaction of the patient's urges and desires, so that satisfaction is acquired in a world of phantasy. This is true for paranoia, schizophrenia and the manic-depressive psychosis.

Whereas those with normal personalities attack the actual environment and attempt to fit themselves to it or it to them, those

who develop a functional psychosis have abnormal personalities, so that they shirk reality when it is unpleasant and retire into a pleasant thought world.

This world is pleasant for the following reasons:

Paranoia.—Failure to achieve is not due to inefficiency on the part of the patient but to the machinations of others. The greater the delusions of persecution, the less the blame attached to himself in the patient's opinion. He is able to overlook his own imperfections and failure to satisfy his desires.

Schizophrenia.—The patient passively retires from his environment and satisfies all his desires in a world of phantasy.

Manic-depressive psychosis.—The patient is much more active and has struggled with environmental conditions. A precipitating cause can often be distinguished, which seems to cause the patient to give up the struggle and secure satisfaction temporarily in a world of phantasy. During the manic attack the affect is one of exaltation owing to the feeling of escape from all inhibitions and the feeling that all his desires have been realized.

The *rôle* of the personality as the cause of the superficiality of the reaction (as in the second case) or the deepness of it (as in Cases 1 and 3) is again stressed, but the mechanism might be described as the same for all cases, and summed up by the phrase—"Escape into the psychosis."

In conclusion I wish to thank Dr. C. Macfie Campbell, Director of the Boston Psychopathic Hospital, Boston, Mass., for permission to publish particulars of the three cases described.

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