CHAPTER TWO
CLINICAL SYMPTOMATOLOGY AND CLASSIFICATIONS

The clinical symptoms of schizophrenia are from all perspectives quite complex. Not only do the manifestations vary from one patient to another, they can vary in individual patients during different periods. Some patients have continuous atypical mental symptoms after onset of the disorder, while others have recurrent acute episodes.

In cases where the disorder develops slowly, people generally are unable to recognize it as such. They may understand it to be a personality problem or a problem in thinking. The great majority of patients exhibit an attitudinal problem. They do not recognize disease in themselves and are incapable of taking initiative to seek medical help, which results in regrettable delays.

I. CLINICAL SYMPTOMATOLOGY

The following is an introduction to the commonly seen symptoms of schizophrenia.

1. THOUGHT DISORDERS

Thought disorders are a defining feature of schizophrenia. The term “thought disorders” refers to unfocused thinking, or thinking that is divorced from reality, and lacking an objective, practical
nature. This manifests in incoherent speech in which statements do not build on each other; there is confusion, incomplete thoughts, and lack of order. Between sentences there is a lack of relation internally or in meaning. Sometimes a patient will suddenly stop speaking, or while speaking on one theme will suddenly interject a completely unrelated sentence. At other times patients use neologisms that a normal person cannot comprehend.

Some patients have disordered speech that is totally lacking in a central theme or any real meaning. Other patients will have acute episodes where they yell the whole day without ceasing, or talk aloud to themselves in incoherent, incomplete sentences. There are also patients who remain completely silent, and do not respond to even the most persistent inquiry.

This form of thought disorder is also apparent in the letters and other writings of these patients, which are mostly muddled and in comprehensible to others.

2. EMOTIONAL DISORDERS

Patients may develop emotional apathy at an early stage. Toward their families they are distant, cold, or even antagonistic. Their emotional responses are dulled, and they show a lack of concern for their surroundings. Frequently the whole day can be spent sitting at home in boredom, with apparently no inner feelings about either happy or sad events; when they do respond, their facial expressions are dull and lifeless.

Some patients have emotional changes with many extremes. Joy, anger, grief, and happiness interchange so quickly that it mystifies anyone trying to comprehend the causes. Some patients have inappropriate affects. For example, they may carelessly narrate the most painful event of their life, or shed tears over a subject that would make most people happy.

3. DISORDERS OF VOLITION

Disorders of volition are explained as activities of the will that are reduced or lacking. The manifestations are reduced strength to
move, reduced initiative and enthusiasm, and behavior that is lazy and listless. They do not aspire to social interaction, work, or studies. Such patients have a slovenly personal appearance and do not maintain their personal hygiene. Some develop contradicting emotions where they think over and over about even the most simple daily encounter until it becomes difficult to resolve. Other patients have stereotyped movements or imitative movements; they mechanically obey or defy and have other symptoms of catatonia.

4. PERCEPTUAL DISORDERS

These are commonly seen symptoms in schizophrenia. Perceptual disorders are the hallucinations and delusions that schizophrenic patients manifest.

A. HALLUCINATIONS

Hallucinations often occur in circumstances when a patient’s consciousness is perfectly clear. Among the range of hallucinations, auditory hallucinations (especially linguistic auditory hallucinations) are most frequently encountered. Sensory, olfactory, visual, and visceral hallucinations are more rare.

The contents of hallucinations are usually simple and unchanging, and often cause the patient to be unhappy. Patients may hear someone talking to them from out of nowhere, or hear someone command that they do something. These are genuine hallucinations in which the sound is clear to the patient. They may obey the commanding voice, even to carry out dangerous deeds. Such patients may have a dialogue with an hallucinated voice and mutter to themselves, or turn one ear to a listening position, or be transfixed by the hallucinatory experience. Patients may laugh to themselves, or talk and speak to themselves as if surreptitiously commenting.

Visual hallucinations may also occur, such as glimpsing apparitions that are simply not there. Some patients hallucinate putrid smells, the sensations of bugs crawling on them, or feelings of electric current passing through their body.
B. DELUSIONS

The contents of delusions are multifarious and are usually bizarre, sudden, and divorced from reality. Delusions have various manifestations. Some patients feel themselves to be the victim of an adverse conspiracy, and are said to have delusions of persecution. Some have exaggerated conceit; they feel their capabilities, position, and wealth all surpass that of others. These are called delusions of grandeur. Other patients have delusions of self-doubt and blame; these are known as delusions of self-accusation. Some patients are suspicious of others without having the slightest provocation, such as suspecting that their spouse is secretly dating another person, having improper sexual relations, and so forth. This form is termed delusions of jealousy. There is also a kind called “erotic madness,”¹ where the patient feels that someone has fallen in love with them. They will usually pester that person ceaselessly. This is referred to as delusions of deep love. Some patients feel that electricity, ultrasonic waves, or machines control their body, behaviors, and thoughts.

The explanations above cover the basic symptomatic manifestations of schizophrenia. In clinical practice, patients most often have one of these symptoms primarily, but it can also happen that several symptoms occur simultaneously in one patient. For example, frequently a patient who primarily exhibits thought disorders will simultaneously have signs of emotional disorders, such as excited shouting, manic laughter, or grimacing. Some patients who exhibit restrained movement as their predominant manifestation may mutely stand to one side and maintain an exaggerated posture. They may also pose rigidly and neither talk nor move, or else have defiant behavior and not accept food to eat. It is possible that during some periods they will have episodes of being excited and disturbed, wreaking destruction and injuring people; after the episode they return to a stiff posture.

¹Translator's note—The expression huà diǎn means literally “flowery madness.” Among its many usages, the word huà has connotations of promiscuity.
II. CLINICAL CLASSIFICATIONS

Schizophrenia is commonly divided into several clinical types. These types reflect the specific clinical features of patients in the various stages of disorder development. They are founded on variations in basic conditions, duration of disorder, and prognosis. With long-term observation, one sees that the clinical type each patient manifests possesses a corresponding static nature.

However, some patients have disorders that evolve with clinical developments and transmute from one type to another. Besides these considerations, patients in the early stages of schizophrenia do not necessarily have entirely clear clinical manifestations. After prolonged devolution and deterioration to the later stages of mental decline, the transformations in each type tend toward recalcitrance. Only rarely is there reversion to the original type. The current divisions of schizophrenia are: simple type, hebephrenic type, catatonic type, and paranoid type. Whatever does not conform to these types, or when a case is atypical, it is categorized as an undifferentiated type.

1. SIMPLE-TYPE SCHIZOPHRENIA

If a schizophrenic patient has few or no associated symptoms throughout the course of their disorder, and primarily maintains the basic symptomatology, this is called the simple type of schizophrenia. This type of patient usually has the illness in their younger years. The disorder has a slow onset, develops steadily, and abates by itself only infrequently. The primary clinical manifestations are daily worsening eccentricity, passivity, disinterest in the surroundings, and emotional coldness toward others. In extreme cases patients lack even the slightest feeling for close family members. Such patients are mentally listless, have dulled responses, are loathe to engage in activity, and are careless about maintaining personal hygiene and appearance. Their school grades go down, work capacity declines, and frequently they stare blankly or stupidly, or cover their heads and sleep. These are the basic symptoms of this type. Progressions and developments could manifest various associated symptoms. For example, a
patient’s speech could show confusion, or have strange, illogical deductions that are incomprehensible. Others manifest all kinds of hallucinations. Some laugh or cry for no reason, behave oddly, or impulsively attack people. There are also patients who neither eat nor drink, nor do they talk or move. They behave as if made of wood.

In the early stages this type of patient can be misdiagnosed as having a problem in thinking or a personality problem. If in the early stages the patient exhibits insomnia, headaches, or mental apathy, they may be diagnosed as having neurasthenia. Frequently several years pass before it is discovered that a serious condition has been developing.

2. HEBEPHRENIC-TYPE SCHIZOPHRENIA

The hebephrenic type of schizophrenia usually occurs during adolescence. The disorder may have an abrupt or gradual onset. When the disorder occurs with abrupt onset, it usually reaches a climax within a short period. We must point out that while patients of this type are mostly in adolescence, it is not true that all youths who develop schizophrenia are necessarily of the hebephrenic type.

The mental activity of a hebephrenic patient is lazy and deranged. They tear things apart, and very often languish in empty thoughts about so-called “science” and “philosophy,” idly speculating on the fundamental philosophical issues of human existence. They have an aggrandized appreciation for their own powers of invention and creation, and haphazardly seek to actualize their “grand schemes and great enterprises.” This type also has the special characteristic of obvious sexual issues, such as excessive sexual drive, and quite frequently impulsive [sexual] behavior. Schizophrenic patients of the hebephrenic type have irregular emotions of joy and anger; in a moment there can be vast changes. Their behavior is naive, unsophisticated, and frequently controlled by hallucinations and delusions.
3. CATATONIC-TYPE SCHIZOPHRENIA

This type of schizophrenia patient is usually young and the onset of this disorder is quite rapid. Early phase manifestations are low spirits and lack of motivation, reduced appetite, laziness, and reduced physical movements. The patient will have neither interest nor emotional involvement in any issues or concerns. As the disorder progresses, it may differentiate as one of two types: catatonic stupor or catatonic excitement.

A. CATATONIC STUPOR

Patients who manifest catatonic stupor appear emotionally cold, with noticeably reduced speech and activity, such that at times they may hold a standing or sitting pose for several hours without moving. They may have rigid movements, rigid speech, imitative movements, imitative speech, disobedience, or other such symptoms. During periods of severe onset, such patients do not speak, do not move, do not drink, do not eat; both eyes are tightly closed or held in a frozen stare, and there is no facial expression. If pushed, they do not move; if called, they do not answer. They respond to no stimulus whatsoever. Although the bladder and large intestine fill with large quantities of urine and feces, they do not excrete. A large quantity of saliva fills the mouth cavity, but it is neither swallowed nor spit out, and it eventually overflows. Overall body musculature exhibits increased tension, or wax flexibility may arise. Brief occurrences of this condition may last just a few hours; prolonged cases endure for several years and then gradually abate. Some cases may conclude suddenly, and a portion of such patients will then enter a condition of catatonic excitement.

B. CATATONIC EXCITEMENT

Manifestations of catatonic excitement often have abrupt onset. Patients are agitated and excited; their behavior is explosive and they often wreak destruction and injure people. Their hallucinations are commonly rich and profuse. This condition normally lasts a few hours or a few days, and afterwards it abates. Patients
may enter a stuporous condition, or manifest continuous stereotyped motions. At severely critical times there may be unceasing agitated motions throughout the day and night that result in fatigue or exhaustion.

4. PARANOID-TYPE SCHIZOPHRENIA

The paranoid type is also called the delusive type, and among the different kinds of schizophrenia is the one most frequently seen. Onset occurs later in life for this type than for the other types, often after the age of thirty. It also arises slowly.

The primary clinical symptom is delusions. At onset, patients are sensitive and have many suspicions. Gradually they develop delusions of reference, or the constant feeling that all phenomena occurring in their purview must refer to them. If someone coughs, it is directed at them; if another person spits, it shows disdain for them; if others are chatting, the discussion is about them. They even suspect that newspaper articles or TV or radio broadcasts all allude to them. As the delusions of reference involve a broader scope, it becomes easier to develop delusions of persecution. This is when the patient becomes convinced that everything surrounding him has been set up by someone in order to harm him.

A patient with such persecution delusions firmly believes that his adversaries will employ any method (including the most advanced electronic apparatus) to injure him; his behavior is under observation, his health is being destroyed, his life is in danger. Clinically, delusions of persecution are the most frequently seen. Beyond this there are hypochondria and delusions of jealousy, self-guilt, and affectation.

The vast majority of patients of this type also have hallucinations, with auditory hallucinations most frequently encountered. Hallucinations and delusions often control the behavior and emotions of such patients. As a result, they may injure people, harm themselves, or have other dangerous behavior.
Those who spontaneously recuperate are rare. In the early stages, character changes in patients are often not apparent. Except at times when patients do not wish to expose the content of their hallucinations or delusions, other aspects of their mental activities undergo no change. Once begun, there is a long period within which the patient can engage in normal working life and easily remain undiagnosed. Generally speaking, disorders of the delusive type mostly develop slowly. However, we should recall that patients can suffer acute bouts of schizophrenia as a result of certain mental stimuli or physically induced causes (such as infection, poisoning, trauma, or exhaustion).
DIAGNOSIS AND ESSENTIALS OF DIFFERENTIAL DIAGNOSIS

DIAGNOSIS OF SCHIZOPHRENIA is primarily based on clinical manifestations. By understanding a patient’s case history and performing a psychological examination, one can analyze the illness and formulate conclusions concerning the diagnosis.

I. COMPILING THE MEDICAL HISTORY
Patients with schizophrenia frequently do not admit that they are ill, and will rarely seek medical help on their own initiative. Thus, family, neighbors, friends, workmates, or representatives of their work unit must supply the case history. When a case history is compiled the patient should not be present. To understand the case, inquiry should emphasize determining the course of disease, the home situation, and the personal history. Determining crucial issues—such as what triggered onset of the condition or manifestations of delusions—calls for thorough investigation and verification with detailed record keeping.

II. PSYCHOLOGICAL EXAMINATION
One method for understanding a patient’s psychological makeup, thoughts, emotions, and memories, is to observe his behavior and to establish contact with him through conversation. While
undertaking the psychological examination, one should meticulously observe a patient's movements and expressions. One should pay attention to whether answers are relevant to questions, and whether or not there are observable signs of decline in mental capacity such as delusions, hallucinations, or poor memory.

Additionally, one should assess the patient's attitude toward his own state. Detailed questioning that probes all aspects of the patient's problems (from the superficial to the deeper levels) provides for a maximum grasp of the patient's mental activity.

When excited and quarrelsome, or taciturn and non-verbal patients are uncooperative during an examination, it is possible that different timing or circumstances may enable one to make helpful observations. Some patients will conceal their symptoms on initial contact with a doctor. They may offer explanations or denials of their case history, and discuss everything clearly and logically. Consequently, some cases require a prolonged period to allow for an accurate diagnosis. Standard physical examination and supplementary laboratory tests are indispensable. The goal of these measures is to rule out misdiagnosis of many disorders (such as brain tumor or certain kinds of poisoning), as long-term research has yet to develop reliable methods of laboratory testing for diagnosing schizophrenia itself.

### III. Differential Diagnosis

When diagnosing schizophrenia, it is most important to differentiate it from the following categories of disorders.

1. **Manic-Depressive Syndrome**

Also named affective psychosis, or cyclic psychosis, this is an emotional activity disorder with the basic feature of excessive highs and lows. There are repetitious occurrences that tend to abate naturally without treatment. Looking at the duration of the

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1Translator's note—Subsequent to the time of original publication, the term “bipolar disorders” has come to replace the descriptive “manic-depressive.” Here, the author’s choice of characters supports the use of the term “manic-depressive.”
disorder, the majority of cases abate in three to six months. During periods of cessation, everything is as normal and there is no retention of psychological shortcomings. A minority of patients endure prolonged, uncured disorders that become chronic. There may be episodes of either a manic or a depressive state; it is also possible to have both simultaneously, or interchanging episodes of the two with intervals of cessation, or cyclical attacks.

The states of mania and of depression are opposite emotional disorders. However, observation of the basic nature of each reveals that they are two differing manifestations of the same illness. Manic-depressive syndrome occurs less frequently than schizophrenia, comprising approximately two to three percent of residential patients in mental health institutions.

Schizophrenia can also accompany the condition of manic-depressive syndrome. When a patient simultaneously has thought disorders, eccentric behavior, and relatively many hallucinations, or when their psychomotility is maladjusted, the differential diagnosis is schizophrenia.

2. REACTIVE PSYCHOSIS

Also known as heart-caused (xin yin xing jing shen bing) psychosis, this disorder results from severe or prolonged psychological factors. The occurrence rate is 1.6–3.1% of residential patients in mental health institutions. Patients usually manifest either of two conditions: psychomotor excitement or psychomotor depression. While the clinical manifestations of this disorder have individual variations, the contents of the clinical psychotic state, as well as psychological elements that cause the disorder, still have close interrelations. This is the defining feature of reactive psychosis. If a patient’s mental state departs from this theme and becomes impossible to comprehend, then perhaps it is not the illness at hand but another psychosis.

Mental stimuli can provoke schizophrenia; however, there is the gradual appearance of “schizoid” manifestations; symptoms become increasingly chaotic, and it becomes impossible for ordinary people to comprehend the patient. Then it is not appropriate
to retain the diagnosis of reactive psychosis. Reactive psychosis in brief cases may last just a few days; extended cases will abate within a few weeks. A minority of cases continue for up to 2–3 months. The prognosis is usually considered good, but a few patients have sequelae such as insomnia, headaches, easily disturbed emotions, reduced memory, and other conditions of neurosis.

3. NEUROSES

This group of disorders results from temporary loss of adjustment in cerebral functions. The maladjustment is from various mental elements incurring excessive tension in higher nervous activity. The most frequently seen disorders of this type are neurasthenia, hysteria, compulsive neurosis, and many kinds of visceral neurosis (such as cardiovascular neurosis and gastrointestinal neurosis). These are individually explained as follows:

A. NEURASTHENIA

This is a commonly seen type of neurasthenic neurosis. The primary manifestations are exhaustion, nervousness, insomnia, hypochondria, anxiety, and worry. The early stages of schizophrenia can manifest like a condition of neurasthenia. However, a neurasthenia patient will take initiative to get medical help, and will follow the treatment wholeheartedly. A schizophrenia patient, in contrast, has no concern for his state and will not take measures to get medical assistance.

B. HYSTERIA

This disorder mostly occurs in female patients. The clinical manifestations include mental disorders (hysterical emotional attacks) and physical functional impediments (hysterical paralysis, tremors, fainting, and aphonia, or even perceptual disorders and visceral and autonomic nerve disorders). The special clinical traits are thick emotional overtones, exaggerations, susceptibility to suggestion, and episodic attacks with complete normalcy during the intervals. All forms of clinical testing show no positive confirmation.
C. OBSESSIONAL NEUROSIS

This form of neurosis is primarily marked by obsessions. Patients perform repetitive actions which they recognize as inappropriate, but they have no way to free themselves from the related thoughts, emotions, and behavior. Feelings of anxiety and worry are often associated with such actions. They are fully self-aware and normally no behavior occurs that is serious or dangerous.

Schizophrenics may also manifest an obsession, but the contents are absurd and mental stimulation is not a clear factor. Additionally, their self-awareness is lacking; they are emotionally cold and maladjusted, and they have thought disorders, hallucinations, and eccentric behavior. These symptoms are all different from obsessional neurosis.

D. VISCERAL NEUROSIS

The clinical manifestations of this disorder are primarily abnormal functions of visceral organs. Simultaneously there may be insomnia, headaches, amnesia, poor ability to concentrate, anxiety, and other symptoms of a neurotic state. Examination shows that the corresponding organs have no organic changes.

In summary, neurosis and schizophrenia are two completely different kinds of disorders. Causes, pathology, clinical manifestations, and transformations are entirely dissimilar.

4. EPILEPTIC PSYCHOSIS

Epileptic psychosis forms one stage within the general development of epilepsy. It has the usual characteristics of epilepsy with multiple seizures. Before and after the occurrence of mental disorders, or possibly simultaneous to the manifestation of the disorder, there are either grand mal or petit mal seizures. Frequently, the nature of this condition relates to the mental experiences of prodromal epilepsy signs and confusion.

Translator’s note—Modern Western terminology does not appear to have a clear correspondence to the Chinese classification of “visceral neurosis.” However, the descriptive is fairly straightforward.
Epileptic psychosis often occurs after ten or more years of epileptic seizures. At this time seizures are gradually decreasing, and auditory hallucinations and delusions then continue occurring. However, a patient with epileptic psychosis is usually able to remain normal emotionally, and has quite good relations with people. This can differentiate them from schizophrenics who manifest eccentricity, laziness, and emotional incompatibility with others.

5. SYMPTOMATIC PSYCHOSIS

A person’s mind and body are a unified whole. Mental disorders can have physical symptoms; diseases of the body can have mental symptoms. When psychotic symptoms are part of the overall clinical symptoms of a somatic disease, it is then called symptomatic psychosis.

Each and every physical illness can cause varying degrees of mental disorders. For the most part they may be categorized as diseases that are either infectious, toxic, or somatic. When somatic diseases cause mental disorders, most mental symptoms improve as the somatic disease declines, so the prognosis is usually good. However, there are some patients who retain mental disorders after the somatic disease has improved, manifesting such symptoms as auditory hallucinations, impeded memory, and thought disorders.

We must point out that although somatic diseases can cause mental abnormalities, not all cases with simultaneous mental abnormalities and somatic diseases are necessarily symptomatic psychosis. Not a few mental patients have somatic diseases that are only provoking factors. As soon as the somatic disease is cured one can then differentiate a clear diagnosis.

6. CLIMACTERIC PSYCHOSIS

This type of psychosis is induced by mental factors or decline of endocrine function during old age. The primary clinical manifestations are feelings of anxiety or worry, and development of
certain hallucinations or delusions. There may also be insomnia, headache, poor memory, heart palpitations, or constriction in the chest, and other kinds of neurosis. The age range for female patients is generally between 45 and 55, or just around the time of menopause. Male patients are generally between 50 and 60. Patients are more frequently female than male.

Climacteric psychosis is definitely not the only psychosis that can occur in this age group. Besides occurring at this stage of life, there must also be the specific clinical traits of this psychosis. According to dissimilarities in basic conditions, climacteric psychosis is usually divided into the following three types: climacteric syndrome, primarily with manifestations of neurosis; climacteric depression, primarily with psychotic symptoms of worry, tension, depression, and hypochondria; and climacteric delusion, primarily with delusions accompanied by hallucinations.

7. SENILE PSYCHOSIS

Also called senile dementia, this disorder mostly occurs after the age of 60. It is a form of progressive mental decline that occurs in a body which is undergoing old age. The primary pathology is encephalatrophy. The special clinical feature of this disorder is a slow onset with progressive decline of intellectual capacity and personality traits.

Memory disorders are the most notable development. In serious cases the patients can forget their own name, and lose recognition of their own children. More critical disorders of orientation and comprehension develop gradually, such that in extreme cases, for example, after walking for a few steps they cannot find their way back home. A minority of patients develop psychomotor excitement against the background of dementia, or manifest momentary absurd delusions and hallucinations. Normally the disorder lasts just a few years; frequently patients die of infection or old age.
8. CEREBRAL ARTERIOSCLEROTIC PSYCHOSIS

Also known as arteriosclerotic dementia, this illness is from sclerosis of arteries in the brain influencing the supply of blood to brain tissues and precipitating a mental disorder. The age of most patients is over 50, and patients are slightly more often male than female.

In the early stages, the clinical manifestations of this form are similar to neurasthenia, and the progression of the disorder is slow. Frequently there are fluctuations. There may be long or short intervals of remission. Several years (even over ten years) can pass before there is a transition to arteriosclerotic brain disease.

As a case gradually develops, thought disorders eventually reach the stage of dementia. At this stage, strength of memory, decision-making, comprehension, and thinking are clearly in decline, while creativity and enthusiasm are lost. Nevertheless, the patient is still able to maintain their basic personality for a long period. Because they recognize that they have an illness, this is considered “localized dementia.” This is an interesting feature that can be of useful diagnostic significance.
I. Creating a Healthy Mental Lifestyle

In recent years the theory of “stress” has been employed to investigate the workings of mental illnesses. It is a relatively new direction for research work in pathopsychology and psychiatry. According to Selye’s original definition, the basic definition of “stress” is the sum of all the non-specific effects of factors (stressors) which act upon the body.²

Stressors are generally divided into two broad types: somatic stressors and psychological stressors. Psychological stressors include a wide variety of psychosocial elements that create a stimulus; these are known as “psychological stimuli” or “mental stimuli.”

A study was done that investigated 189 cases of schizophrenia. The analysis showed that over 60% of the patients had distinct psychological stressors preceding the first onset of this illness. While this clearly shows that over half of the cases were related to psychological stress, only 1/7 to 1/3 of the cases had distinct psychological stressors preceding subsequent attacks. This means that the majority of cases had a distinct mental stressor before the onset of illness. That source also pointed out that the contents of psychological stressors spread to all aspects of life and society, and their nature and forms tend to multiply; therefore, the contents of psychological stressors have a non-specific nature.

In ancient times, Chinese medical scholars emphasized the role of mental factors in creating illness. They held that fluctuations of the seven affects created damage to the spirits of the five viscera, which then caused mental abnormalities and all manner of disease. Moreover, “qi” was used to summarize illnesses from the seven affects.

²Translator’s note—See Hans Selye, The Stress of Life (New York, McGraw-Hill Book Company), p.42, where Selye contends that stress designates the sum of all the non-specific effects of factors (normal activity, disease producers, drugs, etc.) which can act upon the body. He emphasizes that stress is a specific syndrome from non-specific causes.