much to confirm the belief that some sort of relation exists between various constitutional mental disorders. M. HAMBLIN SMITH.

The Relation of the Types of Physique to the Types of Mental Diseases. (*Journ. Abnormal and Social Psychol., vol. xxvii, July–September,* 1932.) *Campbell, K. J.*

The author examined a group of 1,203 cases whose weight in pounds per inch of height was recorded. She found no difference in four out of six comparisons. The curve for weight in pounds showed that the male manic was on the average 10 lb. heavier than the male dementia præcox. The curve in pounds per inch of height showed that the mode weighed 10 lb. per inch more for the male manic than for the male præcox. Kretschmer gives ·30 lb. per inch difference. The author thinks that the fact that her group consisted of mixed nationalities, whereas Kretschmer's was purely Teutonic, may explain the difference. G. W. T. H. FLEMING.

The Rôle *Played by Masturbation in the Causation of Mental Disturbances.* (*Journ. of Nerv. and Ment. Dis., vol. lxxvi, September–October,* 1932.) *Malamud, W., and Palmer, G.*

The authors arrive at the following provisional conclusions:

(1) In a certain number of mentally diseased persons, the development of the disease is closely related to the practice of masturbation.

(2) The conditions observed are closely associated with conflicts that are brought on by the attitudes taken towards masturbation, its effects and implications.

(3) The development of an abnormal mental state in relation to such a conflict is not an invariable concomitant of masturbation. In most persons where it was found to be the case there were a number of phenomena in which they differed from the average. The most important of these were:

(*a*) Constitutional peculiarities as evidenced by poor heredity, abnormal personality traits or both.

(*b*) Lack of proper sex education along with a history of misinformation as to alleged effects of masturbation.

(*c*) Very frequently unsatisfactory general environmental situation.

(4) The development of the abnormal state showed no definite relationship to the continuation of masturbation into the adult life, and in this case the authors found no proof of the supposition that it was excessive masturbation that led to the development of the disturbances.

(5) Psychotherapy was found to be very affective in the readjustment of the patients. G. W. T. H. FLEMING.

Pavlov's Theory of Schizophrenia.

At the meeting of the Boston Society of Psychiatry and Neurology on October 22, 1931, Dr. J. Kasanin read a paper which was a translation of what seemed to him the most important passages in two articles read by Pavlov in January, 1930, in Leningrad, and subsequently published in a small book. These passages seem to warrant *verbatim* reproduction, and are reproduced from the *Archives of Neurology and Psychiatry*, July, 1932, p. 210, by kind permission of the Editor and of Dr. J. Kasanin:

" Studying the highest nervous activity of dogs we found a certain definite type of response of the central nervous system. A study of a large number of dogs, conducted for over thirty years, led to the development of a classification closely allied to the old Hippocratic theory of temperaments. In the first place we found two clear-cut types—the impetuous or excitable type, and the inhibited type. I have always pointed out that all conscious activity of animals consists of an interaction of two fundamental processes, the process of excitation and the process of inhibition. In our dogs we found, on the one hand, the impetuous type, characterized largely by easy excitability and lack of strong inhibitions, and, on the other, an inhibitory type with a well-expressed dominance of inhibitory processes and quick exhaustion of excitations.

" Let an example of the impetuous type be taken. A positively conditioned food reflex is formed to a certain rate of tone vibrations, and then a negative reflex is established to the next frequency of vibrations in which no food is given. The dog of the impetuous type has difficulty in controlling responses. In spite of repeated training, he still responds to the negatively conditioned reflex with a slight amount of salivation, although no food is given. Consequently, the dog of the impetuous type lacks inhibitions, and the process of excitation is stronger than the process of inhibition. At the same time, this dog can stand a great number of stimuli without showing any ill-effect. The inhibitory type of nervous system presents a different picture. A dog of this type quickly forms conditioned inhibitions, but shows inadequacy of its responses to excitation. One no sooner applies a strong stimulus than the dog becomes more or less inhibited and completely incapable of nervous activity.

" Between these two extreme types is found the medial type, with well-balanced excitations and inhibitions. In our material the well-balanced type can be differentiated into two subtypes, one that is naturally calm and collected, while the other is more alert and vivacious. If we apply to these types the ancient classification of temperaments, then the impetuous type would be called the choleric and the inhibited type would be grouped with the melancholic; the well-balanced type would correspond to the quiet or phlegmatic type, or, on the other hand, to the sanguine type, *i.e.*, a subject that constantly demands stimulation for his activity.

" With this introduction on the physiological study of the central nervous system, I can pass to the more pathological aspects of our material. As one might guess in the beginning, the deviations from the norm represented by the two extreme types are the pathologic or unbalanced types. You know that normal nerve activity is a result of two processes, excitation and inhibition, in a very complex inter-relationship, and you can well imagine that the extreme types, which are incapable of integrating and co-ordinating their fundamental nervous processes, will naturally break down much sooner under various stresses and strains.

" This conclusion is supported by experimental facts. If a dog of the impetuous type has to balance the processes of inhibition and excitation under difficult conditions, as, for example, when the conditioned inhibitory stimulus follows immediately after an excitatory stimulus, the animal becomes extremely excited and loses its capacity for the development of inhibitions. The state of marked irritability of the nervous system as a result of close juxtaposition of the excitatory and inhibitory processes with a loss of capacity for inhibitions I have called neurasthenia, which, of course, is incorrect philologically.

"To what extent this condition compares with the clinical concept of neurasthenia is beyond my competence, and can be decided only by a neuropsychiatrist. We have had cases of such neurasthenia in our laboratory. We were able to produce the condition experimentally and, what is more important, we even treated the animals and restored mental health. In this respect we were helped by medications that are used for human beings, especially bromides. Apparently, if bromides are used occasionally for several weeks, the animal regains a capacity for solving difficult problems.

"Turning to a study of the behaviour of inhibited animals under similar conditions, if such an animal is subjected to very strong stimuli and the inhibitory and excitatory stimuli follow one after the other without any interval, the animal becomes unable to respond to more conditional stimuli. In my cases we noticed that the dogs lapsed into a chronic inhibitory state, even losing their capacity for responding to weak stimuli. A remarkable illustration of this phenomenon was supplied by the great flood at Leningrad in 1924. The dogs in our laboratory were in danger of drowning. Through the general tumult of the flood, the roar of falling trees and high waves attacking the building, the dogs had to be rescued by making them swim a certain distance and then getting them to the upper stories of the building. As a result, many of the animals became seriously ill. The strong, impetuous dogs stood the test very well, while the inhibitory dogs became sick. They lost all the reflexes that they had learned, and had to be helped even with the conditioned food reflexes, *i.e.*, they had to be coaxed to eat. Some of the dogs never recovered from this nervous state. There is an interesting case of a dog that becomes incapacitated whenever we apply strong stimuli. When many stimuli are applied at the same time he becomes completely inhibited. This dog can work only when he is in his fixed, favourable environment. Such a state, in which the nervous activity under the influence of strong stimuli expresses itself largely in inhibitions, I have named hysteria, qualifying this term, of course, in relation to dogs.

"It is curious to note that the objection to the use for dogs of the term "hysteria" is based on the fact that in human beings in hysteria there are not only states of inhibition, but marked states of excitement. This objection, however, does not contradict the experimental facts. The dogs of inhibitory type often show outbursts of excitement. I may cite the example of a dog of this type that had to be kept in a holder for long periods. This docile and rather cowardly animal would become extremely excited after being released from the holder. I shall bring up later some facts explaining this phenomenon.

"There is another fact that constantly comes up in our material, and that can perhaps explain some of the pathological processes of the central nervous system. It has already been pointed out that the brain is a complicated organization, all parts of which interact with each other. However, one can isolate one area by incapacitating it while the activity of the rest of the brain remains unimpaired. Suppose that a series of conditional reflexes is established, various sound stimuli, such as noises, ringing of bells and metronome vibrations being used. Each one of these stimuli acts on some definite area in the cortex. It is possible to put out of order any point in an analysing area of the cortex without disturbing other points in the same area. Suppose that an animal learns to differentiate between two frequencies of tone vibrations. It forms a conditioned food reflex to a vibration rate of 100 beats per minute,

and a negative reflex not supported by any food to a frequency of 95 vibrations per minute. Thus an inhibitory reaction to 95 vibrations per minute develops. After these conditioned positive and negative responses have been established, one begins to apply the stimuli one after the other without any interval, occasionally reversing the order. An overlapping of the positive and negative stimuli is produced, and a specific analysing area in the cortex becomes incapacitated or sick. The law that states that the response is directly proportional to the intensity of the stimulus does not hold true. To weaker stimuli one secures much stronger responses. The cells in the analysing area are weakened and cannot stand strong stimuli. If the sound analysing area is still more deeply involved, even weak stimuli give no response. Both weak and strong stimuli result in complete inhibition at the given point, which spreads all over the cortex, completely modifying the behaviour of the animal. At the same time, all other points in the sound-analysing area of the cortex remains unimpaired; thus, if other sound stimuli are applied the response and the general behaviour are normal; as soon as the metronome begins to swing at the rate of 95 or 100 beats per minute the paradoxical phase of inhibition develops, and all conditioned reflexes disappear; this state may last for several days.

"A study of the hypnotic state of our animals led to an understanding of some symptoms encountered in mental diseases. As already stated, between the two extremes of the waking condition and sleep there are transitory states, which appear in dogs as phases of gradually increasing inhibition. Inhibition developing in one area of the cortex spreads partially through the rest of the cortex, attacking some areas and leaving others free, varying not only in the direction of the spread, but also in the intensity of the process. As an illustration, a conditioned food reflex usually expresses itself in two ways: on the one hand there is increased salivation, and on the other hand there occurs the motor reaction to food—the dog looks at the food, tries to reach it, opens its mouth, etc. But as soon as the animal lapses into the hypnotic state, no matter what the cause, there appears evidence of dissociation. On application of the conditioned reflex the saliva begins to flow; consequently the stimulus is acting; but when the dog is given food he refuses it. A strange picture. The animal becomes stimulated by the signal, and yet does not take the food. The explanation is simple. As soon as the hypnotic state is broken, the animal begins to eat. This striking fact has a simple explanation: Voluntary movements originate in special areas of the motor cortex, and although other areas of the cortex escape, including those that control salivation, the motor areas are inhibited.

"This is an example of dissociation of the activity of the cerebral hemispheres. The motor areas of the hemispheres are inhibited, while other areas remain active. Another detail in the experiment makes it particularly curious. It appears that the whole motor area is not inhibited at once, but that the inhibition progresses in a certain order which has a firm physiological foundation. When the dog is given food, a series of kinetic phenomena appear. The trunk turns in the direction of the food, the cervical muscles flex the head, the muscles of mastication begin to contract, etc. Inhibition as well as excitation follows a certain order. When the hypnotic state begins, the first sign that the dog shows is inability to contract the muscles of mastication, other motions being left free. There appears the following picture: The conditioned stimulus is applied, the saliva begins to flow, the dog turns to the food and bends its

head, and yet cannot take the food, the tongue protrudes as if it were paralysed and the animal is unable to open its mouth and chew. This process coincides with other facts in pathology—the inhibition, or the pathological process, attacks first those areas which previously were most active.

" Other states follow. The dog will turn its body but will not bend its head ; if the inhibition spreads, even the turning of the body disappears and the dog remains standing in one place. When inhibitions spread through the whole hemisphere, the dog becomes cataleptic ; it stands as if ossified, all motions disappear, and no reflexes can be elicited.

" It is obvious that the inhibition not only spreads through the hemispheres but attacks the basal ganglia ; without disturbing, however, certain centres dealing with the sense of motion and position. When, however, inhibitions spread even to these centres, complete sleep with relaxation of the musculature occurs.

" Thus, inhibition may be differentiated according to its intensity and localization ; dissociation of the activity of the brain takes place not only in the cortex, but in the subcortical centres, giving rise to a variety of phenomena. It is easy to imagine how rich this variety is in man, who differs from other animals in the size of his brain and in the tremendous complexity of its functions. The general principles of higher nerve activity are the same in man as in the higher mammals. I was convinced of this after I saw the behaviour of patients in the wards. Through the courtesy of Prof. Ostankov and his associates I saw cases of the various forms of dementia præcox. Comparing them with my own material, I came to the conclusion that the various stages of the disease are merely phases of a hypnotic state, which can be explained in the light of our experimental data which deal extensively with the process of inhibition. In order to make this conclusion clearer I shall discuss an extremely important feature of our work, namely, the relationship of the cortex to the subcortical areas.

" The higher nerve activity is composed of the activity of the cortex and of the basal ganglia, representing a united activity of these two important parts of the central nervous system.

" The basal ganglia are the centres of the most important unconditioned reflexes or instincts, such as those of food, self-defence, sex, etc., representing the main life-stream of the living organism. In the subcortical centres are the foundations of overt activities of the organism. From a physiological point of view the subcortical centres are characterized by their inertness to stimuli, whether excitatory or inhibitory. The dog in which the cerebral hemispheres have been removed responds to only a few of a great many stimuli to which it is exposed. The outside world is thus narrowed. The same dog is unable to extinguish its reflex response. For example, it is incapable of inhibiting its orienting reflex to frequently repeated stimuli, while, in a normal dog, the reflex becomes extinguished after it is repeated four or five times. The functions of the hemisphere as compared with the basal ganglia consist in a fine, extensive and delicate analysis of all stimuli coming from within or without. Compared with the crude activity of the basal ganglia, the cortex is responsible for the finer movements of co-ordinating the organism more precisely and accurately with its environment. On the other hand, the basal ganglia are the source of crude activities which are eventually utilized by the cortex. Everyday facts demonstrate the influence of the subcortical centres on the cortex. A hungry animal that has not been fed for twenty-four hours will

show large conditioned food reflexes, but a dog recently fed will give much smaller responses.

" I have pointed out that the amplitude of a response depends on the strength of the stimulus, provided there is a constant food intake for twenty-four hours ; but as soon as responsiveness to the food is stimulated, either by decrease in the ration of food or by delay of the meal, the rule no longer holds true. Both weak and strong stimuli elicit the same degree of response. What appears more often is that weak stimuli produce stronger responses than strong stimuli. This is what I call an equalizing or paradoxical phenomenon. By reversal of the experiment, *i.e.*, decreasing the responsiveness to food in the dog by feeding him just before the experiment, the same response is obtained to both kinds of stimuli. There is, however, a fundamental difference. The equalization of responses takes place on a higher level in the first series of experiments than in the second series. Eventually the dog does not take food with strong stimuli, but does take some when weak stimuli are applied. In both cases the strong stimuli lose their potency, whether the dog is hungry, or whether he has eaten just before the experiment ; the degree of response falls below the usual norm. This can be explained by the fact that when sensitivity to food is raised, strongly stimulated subcortical centres charge the cortex, increasing the lability of the cells. The strong stimuli become supermaximal, eliciting an inhibitory reaction. Conversely, in lowering of the responsiveness to food, the impulses from the basal ganglia are weak and the lability of the cortical cells becomes decreased, especially of those cells that were under stronger stimulation previously. The influence of the subcortical centres on the cortex is seen clearly when only weak stimuli are applied. A definite law becomes apparent—the effect of the weak stimuli depends directly on the lowering or heightening of the responsiveness of the animal to food, *i.e.*, it becomes increased with heightening of the sensitivity to food and decreases with its lowering.

" This influence of subcortical centres on the cortex is substantiated by other experiments. A dog with fatigued cortical cells, in which the reflexes were very weak, was subjected to ligation of the vas deferens and transplantation of testes from another dog. This was probably followed by an increase in secretion of the sex hormone. The operation was beneficial to the dog, all reflexes were restored, and the nerve-cells again became capable of solving difficult problems. The beneficial results lasted only a short time. Within two or three months the dog returned to the original state. When gonads were removed from normal healthy dogs, a marked disturbance of the nervous system developed which resembled clinically an attack of hysteria or perhaps early dementia præcox.

" The subcortical centres are a source of energy of all higher nerve activity, and the cortex becomes the regulator of this blind force, controlling it and directing it. The inhibitory influence of the cortex, already established by Setchenoff, becomes apparent in one of our experiments which may be of importance clinically. I saw an ordinary case of war neurosis. The patient, a former colonel in the army, was well during the day, but whenever he fell asleep he became very excited, waved his hands, yelled and issued commands ; in other words, he lived through his experiences in the war every night. We were able to reproduce a similar condition in a dog. A dog was trained to respond to various sounds of the same musical instrument in connection with some other unconditioned reflex. One of the reflexes was connected with injection of acid, others with reactions to food, and still others with very strong

stimulation of the paws with an electrical current. The electrical stimulus applied was so strong that a very strong defence reaction developed, with an attempt to break away from the holder, loud barking, etc. The defence reaction was so intense that the dog responded in the same way to the giving of food and acid, even though the two types of stimuli were never applied together. After a while the experimentation was continued with only the food reflex, while the acid and the electrical stimulus were dropped. The defence reaction in connection with the food reflex also gradually disappeared within two months. Still later another fact was observed. When the dog was hypnotized, as was shown by the paradoxical reflex, he would show a marked defence reaction immediately after eating. As soon as the hypnotic state was lifted, the defence mechanism disappeared. The analogy with the clinical case was striking. In both cases the severe experiences took place a long time before ; yet their dynamic influence revealed itself after the subjects lapsed into sleep. This can be explained by the theory that the subcortical centres retained traces of former strong stimuli, which became apparent only when the cortex was inhibited, or when there was a positive induction from the cortex into the subcortical centres.

" After one has become acquainted with the activity of the cortex and of the basal ganglia in general, my interpretation of schizophrenia as an inhibitory state of the cortex becomes clear. My attention was called to a symptom which apparently has no special name in psychiatry. The symptom consists in the fact that the patient does not reply to a given question and refuses contact with the examiner, yet the same patient may talk to the physician when he is put into quiet and pleasant surroundings. This is the same situation as that of the dog which does not respond to strong stimuli but responds to weaker ones. I understand such symptoms as echolalia, echopraxia and stereotypy as various stages of a hypnosis, which concentrates its action in one or more parts of the cortex. There is sufficient evidence to warrant looking on schizophrenia as an inhibitory state of the cortex protecting the nerve-cells from further exhaustion. The mild facetiousness and silliness in hebephrenia can be explained by an attempt of the subcortical centres to free themselves from the inhibitory influence of the cortex.

" I have called attention to the great variability of the hypnotic states in animals, and to the dissociation in the activity of the hemispheres when some areas in the cortex are stimulated while other areas are inhibited. It is easy to imagine how great this variety is in human beings. It would require a tremendous effort to orient oneself in this complexity, but I feel some satisfaction in our work, not simply because some of the facts that we have discovered can be applied to man, but because we have developed a method for getting facts that will help in the study of the highest nerve activity.

" In our material we have produced cases of neurosis experimentally in dogs, and we believe that it is possible to produce in dogs other conditions that would resemble psychoses in human beings. This was why I decided to take up again the study of psychiatry, which I had forgotten after my student days. By the courtesy of my colleagues, Profs. Ostankov and Narbutovich, I had an opportunity to observe the various psychoses. The first group I studied was schizophrenia. Here my attention was called on the one hand to the symptoms of apathy, dullness, stupor and stereotypy, and on the other hand to the facetiousness, silliness and, in general, childish behaviour, which the patients had not shown before the illness. What are these symptoms from a

physiological point of view? Can they be understood and thought of in physiological terms? For this one must turn to the data that we have obtained in our work with conditioned reflexes. These data throw a good deal of light on the process of inhibition in its physiologic and pathologic aspects.

" Inhibition, taking an equal part with excitation in the everyday activity of the animal, also acts as a guardian of the most active cells in the brain, *i.e.*, the cells in the cortex, protecting them from too much exertion when they are stimulated by very strong stimuli, or when they are continually stimulated by weaker stimuli. It is the function of inhibition, then, to secure for the cortical cells a period of normal rest after a long period of activity.

" I am certain that sleep is nothing else than an inhibition that has spread over the cortex and has penetrated to a certain depth into the brain. We have also had the opportunity to study in our animals the intermediary stages between sleep and wakefulness—that is, the hypnotic phases. We think of these phases, on the one hand, as various degrees of intensity of inhibition, *i.e.*, greater or lesser diffusions of inhibition in various areas of the brain ; on the other hand, we look on them as degrees of intensity of inhibition of varying depth in the same area of the brain. With the tremendous complexity of the human brain, the variety of hypnotic states in man is great. But some hypnotic states are more pronounced in animals than they are in man ; even in man the hypnotic states show a great deal of variability, depending on the individual patient and on the method of hypnosis. For this reason, realizing the complexity of the subject, I shall consider the hypnotic states both in animals and in man.

" A study of the schizophrenic symptoms mentioned led me to the conclusion that they are an expression of a chronic hypnotic state—a point of view that I shall maintain in this paper. True, apathy, dullness and immobility are no proof of the hypnotic states, but neither do they contradict this view, especially if my thesis finds confirmation in other more specific symptoms.

" First, I shall cite the following facts : Usually the patient is considered apathetic and dull because he does not reply to the psychiatrist's questions. It is considered that his emotional life is impaired. But if one asks the same questions quietly in a pleasant, informal way, one often gets a reply. This is a striking phenomenon to which little attention is paid. In my opinion this symptom is one of the most definite evidences of a beginning hypnosis. We constantly see this paradoxical phase when strong stimuli elicit no response, but weak stimuli give a normal reaction. In a case of hypnosis of five years' duration described by Janet, this was the way in which he was able to establish a contact with the patient. The patient was freed from her hypnotic state when all strong stimuli were removed. Then, in schizophrenia there occurs what is commonly described as negativism. In our experimental animals, negativism is commonly encountered in the beginning of the hypnosis. With the conditioned excitation associated with the food reflex the dog is offered food, but stubbornly refuses it. One detail is significant. When the food-box is removed the dog tries to reach it. This may happen several times in succession. No sooner is the hypnosis broken than the dog immediately laps up the contents of the food-box which he had previously refused.

" Another symptom of schizophrenia is stereotypy, *i.e.*, a tendency toward repetition of various movements, postures, attitudes, etc. This is also a hypnotic phenomenon. In some of our dogs it can be observed clearly. A dog fully awake, after he gets through eating in a setting of a conditioned food reflex, often begins to lick his own paws and chest and the anterior part of

his body. In the beginning hypnosis this licking becomes extremely prolonged, going on hour after hour until the next feeding. Some other motions also tend to be repeated indefinitely.

" A frequent symptom of schizophrenia is catalepsy—retention of certain fixed postures with the accompanying phenomenon of waxy flexibility. A more dramatic symptom is catatonia—a state of marked tension of the skeletal muscles, which resist attempts at relaxation coming from the outside. Catatonia is nothing but a discharge of tonic reflexes, such as occurs in the subject who becomes rigid as a board in hypnosis.

" The variety of symptoms induced by central inhibition is enriched by the playfulness and silliness seen in hebephrenic subjects, as well as the outbursts of excitement with aggressiveness that are observed in other groups of persons with schizophrenia. These symptoms resemble the picture of beginning alcoholic intoxication, or the behaviour of young puppies or infants on awakening or falling asleep.

" All these symptoms can be looked on as a result of beginning inhibition of the cortex, so that the subcortical areas not only are released from the constant inhibition exercised on them by the cortex, but get into a state of chaotic excitation by virtue of the mechanism of positive induction. Hence, in alcoholic intoxication there are happiness and hilarity without rhyme or reason, or excessive sentimentality without crying or outbursts of anger. The same phenomenon is seen in children with tantrums of temper before they fall asleep. An infant, æt. 6 months, when falling asleep presents a remarkable picture. In the baby's face there is a kaleidoscopic variety of expressions due to the chaotic activity of the paleoencephalon. In the various stages of the disease a schizophrenic patient presents the same phenomenon, either in long spells or as temporary explosions.

" After all that has been said, it is apparent that schizophrenia in some of its phases and manifestations is a state of chronic hypnosis. The state may last for years. Bearing in mind the case of somnambulism, of five years' duration, reported by Janet, and a case reported in Leningrad which lasted twenty years, why cannot hypnosis last for years, especially when the condition in the cases cited resembles hypnosis more than sleep ?

" What causes the chronic hypnosis of schizophrenia ? What factors are physiological and which are pathological ? What are the causes of the outcome ?

" The fundamental cause of the hypnosis is a weak nervous system, with special weakness of the cortical cells. This weakness has many causes, both constitutional and environmental. I shall not discuss these causes here, but it is obvious that such a nervous system becomes quickly exhausted when subjected to various physiological stresses as well as to unfavourable environmental factors. Exhaustion is the strongest physiological stimulus for the appearance of inhibition as a protective reaction. Hence, there appears a chronic hypnosis—an inhibition in its various manifestations. This state is pathological, because it robs the patient of his normal activity, but by virtue of its mechanism it is really physiological. It protects the cortical cells from the complete destruction with which they were threatened by the impossible load. In our laboratory we have an example of prolonged inhibition which restored to the weak cortical cells the capacity for normal activity. There is reason to believe that while the inhibitory process is acting the cortical cells are no longer damaged, and that there is a chance for a return to normal function

—that the pathological reaction is reversible. This process, in accordance with modern terminology, means a functional disorder. That this is so can be confirmed by the following fact: The catatonic form of schizophrenia, that is, that form of the disease that is characterized particularly by hypnotic manifestations, shows a fairly high percentage of recoveries, which does not hold true in other forms of the disease.

" In conclusion, permit me to make a therapeutic suggestion, even though it may sound sentimental. No matter how magnificent has been the progress in the treatment of the mentally ill, there is something lacking. The mixing together of patients with various degrees of insight and behaviour, and the lack of segregation of quiet from extremely noisy and excited ones who undoubtedly annoy the quiet patients and sometimes abuse them, can be looked on as an additional load on the already weakened cortical cells. The realization of the loss of freedom, which, of course, may be necessary, also ' adds insult to injury '. It seems to me that mentally sick patients should be treated, as are all other persons who suffer from physical disease, in such a manner that the treatment does not rob the patients of dignity and self-respect."

Dr. Franz Alexander, in the discussion that followed, pointed out that one of Pavlov's pupils, Schinson, had published two books on the subject. Dr. Kasanin pointed out that Pavlov gives excellent psychobiological explanations of some of the most cardinal symptoms of schizophrenia.

G. W. T. H. FLEMING.

So-called Extrapyramidal Reflexes in Various Diseases of the Central Nervous System, particularly in Catatonic Dementia Præcox [*Sui cosidetti riflessi extrapiramidali in varie malattie del sistema nervosa centrale, nella demenza precoce catatonica in ispecie*]. (*Riv. Sper. di Freniat., vol. lv, September,* 1931.) *Severino, A.*

The author considers the reflexes of Puussep and of Schrijwer-Bernhard and the pressure reflex of Södenberg to be extrapyramidal, and the phenomena of Boveri and Piotrowski not to be so. He examined thirty non-catatonic cases, thirty-four neurological cases of various types, and twenty-four cases of functional disorders.

The reflexes were usually more frequent in the organic than in the functional disorders.

The reflexes of Puussep, Schrijwer-Bernhard and Södenberg were infrequent in the hebephrenic and paranoid types of dementia præcox, but frequent in the catatonic types.

The author considers that his findings support the organic origin of dementia præcox, particularly the catatonic type. G. W. T. H. FLEMING.

Fragments of a Schizophrenic's " Virgin Mary " Delusions. (*Amer. Journ. Psychiat., vol. xii, September,* 1932.) *Thomas, J. M.*

The report of a patient who has for six years claimed to be the Immaculate Virgin Mary, Mother of God. The case is unusual, in that the patient co-operated in a prolonged psychological analysis. Certain accepted religious experiences have been utilized to render tolerable certain instinctive urges. Interesting relations are traced with the autobiography of St. Thérèse of Lisieux (" The Little Flower "). M. HAMBLIN SMITH.