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The symposium report includes the text of an illustrated lecture given by William M. Cruickshank on "Psychopathology and Implications for Educating Brain-Injured Children." Considered in the lecture are hyperactivity, the needs of hyperative children, and educational setting and curriculum. Panel reactions are provided by E.F. Rabe, a pediatric neurologist; M. Schnall, a psychologist; and T.G. Devine, an educator. Also included are Cruickshank's responses to the panel and to two questions from the floor. (DF)

Lesley College

Third Annual Graduate Symposium

EDUCATIONAL IMPLICATIONS OF PSYCHOPATHOLOGY FOR BRAIN-INJURED CHILDREN

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The Graduate School of Education
and Extension Division

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Lesley College Graduate School of Education

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INTRODUCTION

Lesley College's Third Annual Graduate Symposium focuses its attention on the field of Special Education with the emphasis on the notion of individual differences. To introduce our theme, I would like to quote a fable entitled "The Animal School."*

"Once upon a time, the animals decided they must do something heroic to meet the problems of a new world. So they organized a school. They adopted an activity curriculum, consisting of Running, Climbing, Swimming, and Flying. To make it easier to administer the curriculum, all the animals took all the subjects.

The duck was excellent in swimming, in fact better than his instructor; but he made only passing grades in flying and was very poor in running. Since he was slow in running, he had to stay after school and also drop swimming in order to practice running. This was kept up until his web feet were badly worn and he was only average in swimming. But average was acceptable in school, so nobody worried about that except the duck.

The rabbit started at the top of the class in running, but he had a nervous breakdown because of so much make-up work in swimming.

The squirrel was excellent in climbing until he developed frustration in the flying class where his teacher made him start from the ground up instead of from the treetop down. He also developed "Charlie Horses" from overexertion and then got a C in climbing and a D in running. The eagle was a problem child and was disciplined severely. In the climbing class he beat all the others to the top of the tree but insisted on his own way to get there. At the end of the year, an abnormal eel that could swim exceedingly well and run, climb, and fly a little had the highest average and was valedictorian.

The prairie dogs stayed out of school and fought the tax levy because the administration would not add digging and burrowing to the curriculum. They apprenticed their children to a badger and later joined the ground hogs and gophers to start a successful private school."

Does this fable have a message? I hope our symposium will present an answer.

BORIS GERTZ, PH.D.
Director of Graduate Programs

*Cress, L. "Pigs is Pigs," Bulletin of:
National Consumer Finance Association
Washington, D. C. 20036

PSYCHOPATHOLOGY AND IMPLICATIONS FOR EDUCATING BRAIN-INJURED CHILDREN

WILLIAM M. CRUICKSHANK

Not all children who are called brain-injured are hyperactive, but hyperactive children constitute a significant percentage of the total group of brain-injured children. Hyperactive children by reason of their concomitant learning and management problems constitute one of the most perplexing issues to teachers and administrators and indeed to emotionally normal children within the school. Teachers as a group have long been known for their willingness and ability to serve children, often far beyond the call of duty. As one talks with teachers one observes that the point at which they find it difficult to incorporate a child within their purview is when that child, by reason of learning behavior, which is too often not understood, fails to respond on any basis to instruction or when his physical behavior *per se* daily brings him and his classmates to the brink of catastrophe. Failure by the child to respond to a teacher's instruction and his failure to adjust within the limitations established by the teacher for group behavior constitutes a challenge to the teacher by the child which pits one against another. In this paper we shall try to analyze this educational and behavioral impass and to make certain suggestions for its amelioration. We shall examine, first, the issue of hyperactivity. Secondly, we shall consider the essential needs of hyperactive children. Thirdly, we shall examine what the educational setting and curriculum considerations must be for children with these needs. Hyperactivity, in this writer's considered opinion, consists of two major aspects, both of which are interrelated. Furthermore we consider these phenonema to be organically based. The concept of the organic nature of hyperactivity is admittedly to a large extent theoretical at our present state of knowledge. Although very little has been done about the problem insofar as education is concerned, the brain-injured child as a clinical entity has been known to medicine, psychology and, to a lesser extent, to education for the past three or four decades. We do not refer neces-

sarily here to the grossly involved child with cerebral palsy, although many of these children do come within the scope of what we shall say. We do not include children with epilepsy, although these are all children with neurological problems and many of them will fall into the group of which we will speak. We think now of brain-injured children who by reason of prenatal, perinatal, or postnatal etiology show an exceedingly interesting syndrome of psychological characteristics. As a result they often fail to respond to learning situations with appropriate achievement. They fail to adjust as a child to a child's society within the expectancies of the adult society.

In speaking of the brain-injured child we enter into a semantic jungle out of which the profession has yet to find its way. In the current literature one can quickly develop a list of more than forty terms all used frequently and all referring to the same child. Little wonder that parents are confused; the professions are more than confused. While we will not trouble you with the total list of terms in this professional quagmire, we should perhaps mention several with which you are familiar. Perhaps you speak of these children as dyslexic, or perhaps you have heard them called children with language disorders, with cognitive defects, with maturational lag, with minimal brain dysfunction, with neurophysiological immaturity, or with chronic brain dysfunction. Perhaps you have called them hyperkenetic children or children with specific or special learning disorders. If you have heard these terms or if you have used them yourself, we are here on the same frequency. I call them brain-injured children which is what in reality they probably are, although we do not have the diagnostic instrumentation sufficiently sensitive or sophisticated as yet to make this diagnosis definitive every time. When that day arrives we shall undoubtedly see that most if not all hyperactive children have a specific neurological basis to their behavior. We shall also undoubtedly learn that many children, now called culturally deprived, have a secondary neurological basis to their problem. We shall learn that many so-called emotionally disturbed children are in reality something else in addition to being emotionally disturbed. While this definitiveness of diagnosis may yet be for the future, sufficient diagnostic accuracy is available to us at present to make possible sound educational programs.

One thing we do know and that pertains to the nature of the learning characteristics of brain-injured children. We know how they function. We know what their characteristics of learning and behaivor are in sufficient detail to be able to make educational generalizations about them which are accurate and helpful in planning for their growth and adjustment. We also know that there are many children without a specific diagnosis of neurological disorder who demonstrate the same characteristics of learning and adjustment as do those children on whom definitive diagnosis can be obtained. These are often emotionally disturbed hyperactive children. To exclude these children from our consideration simply because they have been born two or three decades earlier than professional maturity would like, is absurd.

In the absence of anything better these children should be considered as if they were brain injured, as if their learning and behavior were organically based, for they will apparently respond to appropriate educational intervention if they are so considered and handled. To come full circle to our topic: brain-injury in children is chiefly characterized by hyperactivity from a psycho-educational point of view.

As we stated earlier, hyperactivity has two interrelated aspects which we have already said we feel are organically based. The first of these is sensory hyperactivity; the second, motor hyperactivity. Either of these aspects, if they are present in a child, brings the child into direct conflict with the educational program. In the case of sensory hyperactivity school achievement is directly impaired; in the case of motor hyperactivity, school achievement is also involved but in addition adjustment in the classroom and in the home becomes most difficult.

Let us examine the matter of sensory hyperactivity. One of the chief characteristics of this is that of *distractability*. As a result of what is assumed to be a lack of cortical control, the child is unable to attend to a given stimulus or group of stimuli for a sufficient period of time to be able to make an appropriate intellectual reaction, or, to state it differently, to have appropriate conditioning take place. These children by reason of their disability are unable negatively to react to extraneous stimuli in their environment. They tend to react to the unessential. They seem almost to have a compulsion to

react to every stimulus within their sensory field. There was a time when we felt that this characteristic of these children was essentially a matter of reaction to visual stimuli. We now know that the problem they have involves all of the sensory systems: audition, tactual, thermal, and, to a lesser extent insofar as adjustment is concerned, taste and smell. The tendency of these children is to react to whatsoever stimulus comes within their perceptive field irrespective of what it is that is expected of them at the time. As normal people we tend to adapt negatively to the unessential in our experience. Advertisers recognize this and for this reason we are pommelled dozens of times a day by the same refrain in the hope that mere repetition will bring it to our conscious attention. However, most of us are impervious to most of what goes on around us. Stimuli are permitted to exist in space and in time, but to most we do not pay them the compliment of a reaction. It is this unique ability of human beings to ignore which makes it possible for us to live through a complex day and yet retain sufficient energy to enjoy an evening's entertainment.

This is not the situation with the hyperactive child. He, for whatsoever reason, is unable to attend to the primary stimulus in his sensory field because of the multitude of unessential stimuli in his environment to which he is forced to attend. Any color, noise, or movement, irrespective of its appropriateness to the task at hand, may cause his attention to be distracted and may cause him to respond. In thus responding he fails to react as the adult would wish him to react to a specific learning assignment.

The issue of sensory hyperactivity is manifest in a number of serious ways. As a result of the child's constant need to react, he is characterized by an exceedingly short attention span. This writer has many times seen children whose attention span was at best no more than a minute or two. When a child has a two-minute attention span, under optimal conditions, what is the teacher-pupil problem when the reading lesson is planned for a twenty-minute period? The last eighteen minutes, more or less, become a disciplinary hassel not an instructional experience.

Envision for a moment a typical page out of a child's reading book. On this page, for example, there may be 150 words, the average length of which would be approximately five let-

ters. Hence, there may be on the page a minimum of 750 letters. Each letter and word has a space in between. Thus, there is additionally a minimum of 750 spaces. Each letter forms an angle in relationship to another letter or to several letters. Hence, there are unlimited numbers of angles and relationships of a visual nature which are possible. There may be a picture on the page which includes numerous details, colors, and relationships. Thus on this single page there are hundreds of stimuli. The words are stimuli; the letters are stimuli, the spaces and angles and colors are stimuli. In this highly stimulating situation, which for the normal child constitutes no problem, because of his ability to adapt negatively, a hyperactive child is asked by his teacher to "Begin reading today on the first word of the first line of the second paragraph." That first word is the *figure*. Insofar as the child can attend and not be distracted he may focus on the first word. If he is distracted by the unessential stimuli on the printed page, stimuli which form for normal children the *background*, he will be unable to attend to the essential word, the figure, long enough to make an appropriate response. Reading specialists and psychologists tell us that these children are characterized by a figure-ground reveral problem — a *figure-background pathology* — which is indeed true. More basic than this, however, is the inability of the child to refrain from reacting to unessential stimuli. This results in a figure-ground problem. The end result of this situation is the child's inability to respond orally in spite of the fact that he may know the meaning of most of the words on the printed page.

Another child is asked by his teacher or by a psychologist to assemble a block design or to function with parquetry blocks. There may be from six to twelve blocks — six to twelve stimuli. Often these may be multicolored materials. Because of the multiplicity of stimuli, the child may not be able to conceptualize the design he is asked to copy. The inability of the child to assemble the blocks appropriately is called *dissociation*, but in reality this psychological problem is likewise another manifestation of sensory hyperactivity. Dissociation, the inability to conceptualize things as a whole, is a serious deterrent to good learning.

Turn your attention to still another area of learning. How many times have teachers prepared an arithmetic drill ex-

perience for children? Let us assume that it consists of a single piece of paper on which twelve problems have been placed. Let us further assume that these consist of three-digit addition problems arranged in three rows of four problems each. On the paper are 36 numerals, 12 addition symbols, and 12 straight lines under the 12 problems. Angles, spaces and other visual factors constitute additional stimuli. The child is likely to obtain the correct answer to problem Number One, because its location on the page brings it into relationship with two edges of the paper and a corner. This provides sufficient structure for the child to allow him to attend. Furthermore, on two sides of the arithmetic problem there is space only and no distracting stimuli. From that point on, however, as he moves to problem two, three, or four, the chances are that he will get few problems correctly solved. Extraneous visual stimuli surrounding the problems internal on the paper coupled by a third factor, the child's insecurity *in space*, constitute a major series of hurdles to successful achievement.

Oftentimes a child's attachment to a single stimulus and the pervading influence of this stimulus also will cause failure to learn. We speak of this as *perseveration*. The prolonged after-effect of a stimulus will interfere with the reception and coding of new stimuli to the end that learning fails to take place.

While we have been using examples of sensory hyperactivity which are essentially visual in nature, the same problems may characterize the child's attention insofar as other sensory modalities are concerned. Figure-background problems appear as the child attempts to sort out auditory stimuli. They are significant, although apparently not in the same degree, with tactual situations involving discrimination of figure from background. Localization and identification of gustatory stimuli is similarly affected. Auditory perseveration and dissociation are not unusual in hyperactive children or in brain-injured children. Sensory hyperactivity, then, is an essential element in the failure of the child to respond appropriately to learning situations. Furthermore, this situation quickly becomes compounded, for in the failure of the child to respond appropriately on a sensory basis, age concepts are immediately involved. The age concept of the teacher is also involved, for the child does not respond to her experience or wisdom in the same way as do

other children. This is a threat to the adult. The inability of the child to have the reward of a success experience in terms of adult standards and norms for him causes frustration and a lessening of his tolerance level to additional frustrations. There shortly appears a significant emotional overlay to what originally was a neurophysiological problem. As a matter of fact, the term, hyperactive child, is often used synonymously with the term, emotionally disturbed child. The latter issue clouds the former completely. This clouding of what in reality is the basic problem, results in much mismanagement of these children from an educational and psychological point of view in the considered opinion of this writer.

Motor hyperactivity is the second aspect of the problem which must be considered. This more accurately is called *motor disinhibition*, but irrespective of terminology, it is the inability of the child to refrain from reacting to a stimulus which produces a motor response. Anything which can be pulled, turned, pushed, twisted, bent, torn, wiggled, scratched, or otherwise manipulated motoricly will be so handled. As some children cannot refrain from reacting to unessential visual or auditory stimuli, so some are also unable to refrain from reacting to stimuli which produce movements. These are the children who cannot sit still. Internal as well as external stimuli are significant. An epigastric sensation is as distracting to some as is a tight belt or the sensation of a shirt sleeve on the arm to others. These are children who fall out of their chairs. These are children who in a line are always pushing or pulling others around them. Some similar corporal behavior is seen in the normal adjustment of the preadolescent, and careful differential discrimination at that chronological age must be made between what is normative behavior and what is pathological. These are children who overact motoricly to certain stimuli, for example, the ringing of a fire drill bell. These are children who seem to fall apart behavioristically in the face of any tension-producing social situation. A birthday party can result in tragedy for these children — the tragedy of never being invited again. The diffuse and uncontrolled *space* of the playground, the auditorium, the school cafeteria, or the school hallways constitutes a stimulus the nature of which the child and often the adult fails to understand but which violates the child's being and may preclude any possibility of his ap-

propriate adjustment. Tensions — which are physical — which result from these experiences and from these situations, in turn produce motor reactions in the hyperactive child. The combination of motor disinhibition and sensory distractability constitute a barrier to good learning which is often unprecedented in the experience of the individual teacher and more so in the experience of the child's parents.

From this brief discussion of the nature of hyperactivity, it can be observed that the issue we deal with is one filled with psychopathology. Such psychopathology can be measured and can be described by careful psychological assessment. It is the responsibility of psychologists to delve into the nature of the child's intellectual response pattern and to ascertain the essential elements inherent in it. Without this psychological blueprint, the educator cannot conveniently, if at all, develop an educational program. The failure to adequately describe the nature of children has left educators with their only recourse, namely, to try to educate children under labels and in groups without understanding the fallacy of such grouping or the inherent implication of the label. It is possible for psychologists to so adequately describe a child in terms of the psychopathology of attention span, of figure-ground relationship, of dissociation, of motor disinhibition, of perseveration, of angulation problems, edging, immaturity, and of self-concept distortions visually, auditorily, tactually, and if need be in terms of other sensory modalities, that teachers have before them a true picture of the warp and woof out of which the child emerges. Without this, time is lost to both educator and child. Without this, a truly appropriate educational program may never emerge. Without this, the child's spiraling into further maladjustment and personal disorganization is accelerated. Psychologists indeed have a unique and significant role to play in the educational regimen for the hyperactive child.

If this be the nature of hyperactivity insofar as education is concerned, what then are the needs of the child? We must recognize that the problems of the hyperactive child are in most cases those which he has experienced for his total life. Except for those which are definitely traceable to postnatal disturbances, most of the etiology will be found in prenatal or perinatal insult to the developing organism. Because of neurological disturbance, the child may be unable to appropriately

perform fine motor movements involved in sucking. Nursing then can become a failure experience from the first instance. What should have been a source of satisfaction to both the mother and the child and should be the basis of a long series of success experiences, begins as a failure experience for both. The failure to suck or to swallow efficiently is extended to delayed sitting to delayed walking, talking, running, learning to balance, and to most other skills which are learned by normal children in the daily activities of childhood without extensive formal teaching. The child soon comes to conceptualize himself as "I am one who cannot," instead of the normal child's approach to himself of "I am one who can."

In practically every psychologist's file there are many records of children which contain drawings of persons. These drawings are oftentimes fragmatized and incoherent translations of what the child conceptualized the human form to be. When one's own fingers fail to perform satisfactorily, one cannot for long claim ownership of the offending digits. When fingers fail to tie shoes, to button buttons, to "zip" zippers, to pick up a glass, or to do the many other things without accidents, which are required of them each day, they tend to become divorced psychologically from the body of which they are an inherent part. When legs won't kick a ball, or arms appropriately swing a bat, or when arms together cannot manipulate a knife and a fork to the end that appropriate eating behavior is experienced, then faulty notions develop of what the human form really is. Negative self-concepts and poor concepts of body image are almost universal in appraising hyperactive children. "Why can't my hand do what my eye sees?" is a plaintive question asked of the writer on more than one occasion when a brain-injured child — a hyperactive child — tried to cooperate and to perform on visual-motor tests. This child is making a self-diagnosis of his visuo-motor problem.

Hyperactive children have had a remarkable experience with failure, but a poor experience with success. They have found few bases on which they are able to satisfy adults or to meet the standards of adjustment and behavior expected of them by adults. Since reading and writing also involve fine-motor movements, these skills, like sucking from a bottle or swallowing, are also defective. A child who dissociates will have extreme difficulty in learning manuscript writing, yet

how infrequently are these children taught cursive writing when they are beginning to write. This is a time when success is uniquely important, but the child's first attempts at writing are met with failure because the method of manuscript writing itself produces failure in that it inherently involves those very concepts of association and dissociation in which the hyperactive child is characterized by pathology. The early success experience he needs is supplanted by another failure experience of which he has already had more than his share. The basic need of hyperactive children is for success — success in something in which adults and adult society genuinely believe. This need is not dissimilar to that of all children. However, most children have had their share of success. They have found ways of appealing to the age needs of their parents and their adults. They smile cutely. They parrot words and then are reported to "talk." The whole family including all the in-laws are formally notified when the child takes his first step. And when at eighteen months in his random motions he inadvertently picks up a plastic baseball bat which father has brought home, father's pleasure is almost beyond measure and the tale is related to anyone in the office the next day who will feign to listen. Children have success experiences. Through them parents have success experiences. This prompts parents to set more situations in which the child can prove himself, and when he does the basis for strong parent-child relationships are present. The hyperactive child, hyperactive for whatsoever reason, does not have this built-in insurance for strong relationships. More and more his behavior propels him outside the circle of acceptance in family, in neighborhood, in school, and in the community generally.

We come now to the implications for education of what has thus far been said. This can only briefly be discussed, for in detail the issue is a complicated one. There are some essentials, however, which must be kept in mind at all times in dealing with the hyperactive child, whether it be teacher-child relationship or parent-child relationship.

First, it is necessary for the adult to find a level of achievement at which the child already has success on which to base whatever educational program is possible. Second, the educational program for a given child must directly reflect the psychopathology which is inherent in the child. Thirdly, the edu-

cational program must always be presented to the child in a learning situation and within a time span which permits conditioning to take place. Fourth, the teaching experience must always be carried out within arm's reach of the teacher. Finally, the program for the child must be structured environmentally and methodologically. Let us look at each of these five elements which are among the most important considerations in the education of the hyperactive child.

We have said, first, that it is necessary for the adult to find a level of achievement at which the child already has success on which it is possible to build toward additional successes. One of the great misunderstandings which educators continue to perpetuate is that of remedial education. There is, I suspect, a place for remedial education for certain children. Remediation, however, implies that something has taken place, something has been learned, which if modified in some form, can bring better achievement to the individual. In the case of the hyperactive child whose failure experiences are concomitant with very futile attempts at adjustment, there is little to remediate. In contrast, new learning is required. Initial concepts must be established. The education of hyperactive children is not a matter for the remedial reading teacher. It is indeed something else entirely.

It is essential, then, for the teacher to carefully assess the skills of the child in all aspects of his learning and to find a level of competence so primitive that success is possible, not on a chance basis, but continuously. On this primitive level then, other learnings are based. Since, unfortunately, most of these children are "discovered" for the first time officially about the time they are in the third or fourth grade, this may mean that the teacher will have to retreat with the child to pre-academic levels. It is very often the case that these children are unable to discriminate between colors, are unable to recognize forms, are unable to conceptualize total puzzles from their parts, are unable to write, are unable to name body parts, are unaware of spatial relationships, are unable to balance or to deal with walking boards or other equipment which requires gross motor activities. What role does remediation play here? Something different is required. It is quite obvious to this writer that for the great majority of these children there is little possibility of retaining them successfully in the regular grades of their

schools. Special class placement is required which involves a type of clinical teaching not usually the pattern at the present time in special education. This recommendation for special class placement is made by one who is known to feel that the goal of all special education is the integration of the child into the normal educational program insofar as possible and as quickly as possible. These children present too many unique differences to permit their easy, convenient or appropriate retention in the regular grade. Special facilities are required if they are ultimately to reassume a place in the normal educational stream.

It is futile for the teacher to try to build an educational program on the failure experiences of the past. It is futile then to try to conceptualize a method which is conceived in terms of the chronological age of the child or indeed oftentimes in terms of his mental age. It is mandated that the program be conceived not on failures, but at a level where success was experienced at some time. Retreat to the primitive is thus the rule. Retreat must be made to a point wherein achievements favored by both the social structure and the child can be experienced. On this success, clinical teaching will build new constructs of success and out of it will come a more perfectly organized human being.

We have said, secondly, that the educational program must directly reflect the psychopathology inherent in the child. There is little value in providing a child who is characterized by figure-background pathology with the typical reading lesson which we described earlier. If figure-ground relationship is a problem, then it goes without saying that reading materials must be provided which reduce figure-ground problems to a minimum. Instead of a reading book with many words on a single page the reading material for this child may utilize many pages of paper with only word at a time per page. Now there is no background stimuli for the child to confuse with the foreground figure. The figure alone is presented on the page. Twelve arithmetic problems would never be presented to this child at one time. Instead one problem per page will be given him to work, and one page at a time may be in his hand. In this procedure, prob m number seven on the page of twelve problems of which we spoke cannot become confused with the stimuli of problems which surround it. Problem number seven

now stands alone on its own piece of paper. The child sees it as it is without the interference of background, stimuli from other problems.

The child we speak about is probably dissociating. He cannot see the whole because of the individual parts which have great attraction for him. This child must be taught to write using cursive methods from the beginning. He will not be taught manuscript writing at all. One method minimizes his pathology; the other, accentuates it. Some children who dissociate may need additional help from the teacher even when in arithmetic he places one problem alone on a piece of paper. He may then enclose the single problem within heavy black lines in order that the child conceptualizes more easily the two or three digits to be added, the addition sign, and the line under it as all being part of the same concept.

A further example of what we mean when we say that the teaching must reflect the psychopathology pertains to the hyper-responsiveness of the children to stimuli. True, usually this is a determent to learning, but it can also be exploited by the teacher to the child's advantage. We know that the child is sensitive to stimuli and that extraneous stimuli are usually a deterrent to learning. However, in an appropriate learning environment, it is possible to increase the stimulus value of the thing the teacher desires the child to see. This can be done sufficiently so that the child will be attracted to a given visual presentation long enough for positive conditioning to take place. For example, in handwriting, instead of using a white paper with faint blue lines the teacher may use a brilliant colored paper with many different colored lines. The teacher here is increasing the stimulus value of the line, the element he is anxious for the child to perceive as he attempts to write his name or a given set of letters or words. The brilliant colored paper serves to delineate the visual field within which the child is to write. This is using the disability to the child's advantage. A final example of our meaning pertains to the problem of perseveration. Normally a teacher's instructional plan will be to accentuate similarities. Spelling may grow out of reading. Reading may grow out of social studies. Commonalities are stressed. With the hyperactive child who is perseverating, this is not the most appropriate procedure. Dissimilarities are stressed in order that one element not be perseverated into the

next and thus confuse the child's perception of the second fact by the first. For example, reading might be followed by parquetry activities. These might be followed by motor training. Motor training might be followed by spelling. No two experiences are sufficiently similar to permit perseveration to be a significant issue. Or to put it differently, one experience follows another so different in kind that perseverative tendencies are easily displaced because of the unique differences.

There are literally hundreds of ways each day when the teacher, if he knows the disabilities of the child, can develop an instructional model for the child which either minimizes the disabilities, rules them out entirely, or exploits them to the advantage of the child and his adjustment. Unless the teacher knows the psychological or psychopathological blueprint of each child, however, what we are here suggesting is nearly impossible.

We have said, thirdly, that the educational program must always take place in a situation and within a time span which permits conditioning to take place. If a child is hyperactive to extraneous stimuli, it goes without saying that the stimuli must be reduced in the learning environment if an optimal learning situation is to be created for him. If one considers the best classroom in the elementary school in which he is familiar he will conjure up an image of a delightful situation. It is filled with things which are intended to motivate the children. It is a happy, gay, and pleasant place in which to be. The best classroom in your imagination, however, is the worst classroom for the hyperactive child. There are too many stimuli which the hyperactive child cannot avoid. These become, for him, deterrents to his education. They are elements of continual distraction.

The classroom for hyperactive children should be as free from distractions as it is possible to achieve. In an ideal classroom, from the point of view of this writer, walls, furniture, woodwork, and floor covering would all be the same color. Windows would have opaque glass to reduce stimuli outside the building. The ceiling would be sound treated, and the floor would have wall-to-wall carpeting. Shelves would be enclosed with wooden doors. Every effort would be made to have the environment surrounding the learner as stimulus free as possible. The goal is to provide a setting in which the environment

itself does not distract the child. To state it differently — the environmental stimuli will be reduced to the point where the child will find it possible to attend to that which is immediately within his visual field.

Another aspect of stimuli reduction pertains to the matter of space. We mentioned previously that hyperactive children experience increased tension in space over which they feel no psychological control. As space increases so stimuli increase; the converse is also true. Thus, the classroom for hyperactive children will be smaller than the traditional one and it has been found helpful to provide within the classroom pupil cubicles for each child. Within the small area the child finds a spatial arrangement which is unique for him and one in which he can feel that he is the master. If necessary he can actually reach out and touch the three walls of his cubicle, as one child told the writer, "to remind myself where I am." When the child is oriented to space, he can begin to organize himself in relation to his environment. He can begin to relate himself to his environment. Although the environmental area is small, his feeling of satisfaction within it serves as a springboard from which he can begin to have other types of success experiences with the things of learning and achievement — abstract as well as concrete.

We mentioned as a fourth element the necessity of the adult to carry out the teaching within arm's reach of the child. This is not always possible, we recognize. However, it is essential that as close a personal relationship as possible be established between the adult and the child. Although we are not now dealing with psychotic children, the hyperactive child, because of his tendency to dissociate and to reverse field, oftentimes has a very confused understanding of what the adult is like. His perception of the adult may be as inappropriate as are his perception of numerals, letters, or other symbols. The child is insecure in his relationship to his environment and to the things in it. If the teacher can always carry on the instruction with his hand on the child's arm or shoulder, the child experiences a definite and physical structure between himself and the adult. Teaching within arm's reach is not intended to have disciplinary implications. The sole implication is that of relationship structure.

Finally, in this discussion we have mentioned that the pro-

gram for the child must be structured environmentally and methodologically. We have already mentioned the environmental structure through the utilization of stimuli reduction and the cubicle. In just as significant a way everything which goes on within the classroom must be structured. This is not a place for permissiveness — at least not in the beginning. How can one make adequate choices which are demanded within the permissive construct if one has never had a success experience when choice has been possible? The fundamental learning theory to which we subscribe is one of conditioning completely infiltrated with psychoanalytic concepts. In seeking to find the primitive level on which to start learning experiences as we earlier mentioned, the teacher is in effect seeking a base upon which he can provide an adequate conditioning experience. As success responses are developed, as security in learning begins to be experienced, as confidence builds up, then choice can be provided. Whenever choice is provided, the child must also always have an escape valve available to him, a feeling of permission to retreat again to a level of performance on which he knows he can succeed. When this is not understood, the child may hesitate a long while before he tries something new. To remain too long on a behavioral plateau is itself not conducive to learning either.

Structure permeates the entire teaching concept. We speak of relationship structure between the teacher and the child. We speak of program structure in the conceptualization of the school day and program. We have seen the significance of environmental structure. We help the teacher to devise structured teaching materials in keeping with the psychopathological needs of the child. For a child whose whole life to date has been one of luck, of structure and failure, the externally imposed structure provides him with a concrete fabric on which to rest his life. As Rappaport so accurately states in another situation, the environment and all its components must serve as an "ego-bank" to the child who has in the beginning nothing to invest, but from which he must withdraw his total life structure. As conditioning takes place positively and as the child begins to accurately see himself in relationship to his social order, the need for the external structuring can become less and less until indeed the hyperactive child may be able to

re-establish himself as a member of the normal school group — and does so in many instances.

A few words need to be said further on the matter of teaching the hyperactive children. These children are multihandicapped children in the truest sense of the word. They present the most complex teaching problems of any in the entire spectrum of exceptional children. It occurs to me that in the approach which is being suggested here and which indeed has been tried sufficiently to convince this writer and many others of its efficacy, some solution to the education of multihandicapped children may exist. Old approaches which have been tried within the fields of both general elementary education and special education have not proven to be valuable with seriously or even mildly multiple handicapped children. We speak now of such problems as the blind retarded child, the Cerebral Palsy child with visual, speech, and hearing problems, the aphasic retarded child, and other combinations of disabilities.

The hyperactive child is indeed similar to these. No two hyperactive children are the same in any respect. Neither the degrees of distractability nor the relationship between characteristics of psychopathology is ever identical in these children. In one child the problem may be chiefly visuo-motor; in a second, predominantly audio-motor; in a third, hyperkenesis and tactuo-motor. The concept of a *group* of hyperactive children is a figment of someone's imagination, for groups of children with sufficiently homogeneous characteristics to be considered comparable for educational purposes do not exist. Small collections of from six to eight children with relatively similar problems can be organized, but within this social structure the teacher of hyperactive children soon understands that she must constantly deal with six or eight individuals as individuals. It will be many months before she is able to bring them together for even small group activities involving two or three children at one time. These educators are forced by the nature of the children to think in terms of individual needs.

The concept of individualization of instruction and the concept of a teacher meeting the needs of a child are old. In educational history they are first discussed by Froebel, Pestalozzi, and Herbert. They became the banner and cry of the progressive educators of the 1930's. These concepts were fundamental

in the thinking of Dewey and practically every great educator of the western world of modern times. But how infrequently do we see them implemented in the classroom. In practical educational situations the concept of meeting the needs of children is nothing more than a hollow cliche. It is an empty symbol of something which should be an aggressive concept.

With the hyperactive child these concepts must take on immediate meaning. The education of the hyperactive child cannot be successfully consumated unless his individual needs are identified, thoroughly understood, and until these needs become so well known by the adults who work with him that they are a constant and vital part of every educational decision which is made in the child's behalf. As a teacher, I cannot work successfully with the hyperactive child if all I know is his diagnosis and his intelligence quotient with perhaps the added plus of the mental age. As a teacher, I cannot meet this child's needs if all I possess is a feeling that he, like all children, should be considered as an individual. I do not know from this which handle to grasp first to meet his needs. I don't know what his needs are. As a teacher, I have the right to expect that the diagnosticians who assess this child will provide me with a detailed description of how this child functions mentally, of what his psychological strengths are and what is the nature of his disabilities. I must know what the length of his attention span is. If I don't, I shall violate his being a dozen times a day by exceeding it. I must know when his attention span begins to increase as the result of success experiences which I am able to provide for him. If I don't, I shall undersell him educationally. I must know if he dissociates. If I don't, I shall violate him psychologically by not providing him with the visual cues to reduce the impact of his disability. I must know if he reverses field. If I don't, I shall perpetuate his problem by providing him with inappropriate educational materials. I must know if he is a psychologically damaged child, damaged to the extent that he has little or no feeling of personal worth, for if I don't, I shall fail to provide him with those learning experiences which may give him the solidity he needs for a positive self concept to develop.

In wiring a computer after the program has been agreed upon, extraordinary care must be taken to assure that every concept is translated into the correct circuit. If this is done,

it can be assumed that every idea, every measure, every desired goal will be translated electrically and mathematically into a symbol which can be understood and interpreted into a meaningful concept. So too with the hyperactive child. Those who work with him — his teachers and his parents for the most part, for they have him for more hours than anyone else — must have information about the child in such minute detail that they, like the computer operator, can join this child, his characteristics, and their teaching method and materials so perfectly together that the outcome is logical and can be predicted. The educational material, the education technique, the education setting for the hyperactive child must reflect in a one-to-one relationship the psychopathology and the needs of the child. When this is done it can then truly be said that we have provided an educational milieu for the hyperactive child. Then and only then can education as a profession raise its head and say we have met this child's needs.

This seeming utopia can be achieved. We cannot do it now sufficiently often to be able to serve even a fraction of the children who need it. The status quo prevents sound educational programs too often still from being activated. Professional educators are still too comfortable with what they do to try to do it differently. We still teach all children by the manuscript method: Too few administrators understand this problem to permit the too few teachers who are prepared to practice their learning in behalf of these children. College professors to prepare these teachers are almost non-existent today. The situation will change in the years ahead, for the very nature of the children requires that it change. We have seen radical changes in our *understanding* of these children since 1940. There is little question in my mind, but what in a comparable amount of time in the future we shall see the understanding translated into action programs and the needs of these children more nearly universally met.

PANEL REACTIONS

Dr. Rabe

I enjoyed listening to Dr. Cruickshank. Recently, I read his new book on "The Brain-Injured Child in Home, School, and Community" to get a leisurely picture of what his point-of-view is in today's discussion. He covered the subject well from his own vantage point. The subject is difficult and broad, and my views are of only one facet of the problem. My reactions may, therefore, be narrow, but I believe have some validity for your profession.

As a pediatric neurologist, I have no proficiency in public school education, thus I will not be presumptuous and talk about educational methods. My involvement in the problem is due to the fact that children with school difficulty are often sent to us because they are said to be "brain-injured" and we are asked to determine if this is true, what the manifestations of the brain injury are, and how they may be managed best. Using the term "brain-injury" to label many of the children which Dr. Cruickshank is talking about is difficult for me. If one assumes that injury, as defined in the dictionary, implies that the child has had some type of trauma or hurt to the brain and, as a result, a specific lesion, one will find great difficulty in corroborating this assumption in many of these children.

The simplest way to approach this complex subject is to consider whether or not one can diagnose "brain-injury" in a child with a normal past history who presents with behavioral characteristics similar to, but not identical with, a child who has had a clear-cut history of past brain injury, plus, in the presenting child, an abnormal brain wave pattern (EEG pattern).

The child with the localized abnormality of the brain wave pattern (EEG) may or may not have any structural abnormality of the brain. In the early days of EEG measurements, children with localized EEG abnormalities and seizures were operated upon by fine neurosurgeons who attempted to remove the area of brain from which the EEG abnormality seemed to originate. An imaginative electroencephalographer repeatedly tested the EEG patterns after surgery and found that the focal EEG abnormality had indeed been erased from its previous sight but that it recurred in other areas of the brain in a pattern of changing location with the passage of time,

and that finally, years later, the EEG abnormality would disappear spontaneously altogether. In these children, then, the EEG focus was transient, it did not indicate structural brain abnormality, and it was self-healing. In addition, as time passed, it became apparent that the presence or absence of these EEG foci were not always good predicters of whether or not the child would cease having seizures. This is one example of how difficult it is to relate EEG abnormality with structural brain disease or with clinical symptoms, and points out the uselessness of the EEG *alone* in making a diagnosis of "brain-injury".

To return to the original child with unusual behavior and an EEG abnormality, it need only be said that behavior characteristics alone do not define or are not diagnostic of brain injury. The conclusion, then, is that one cannot justifiably call a child with certain behavioral characteristics and an abnormal EEG, a "brain injured child" on the basis of these criteria alone. The child's behavior plus findings on detailed neurological examination may indicate altered or aberrant function when compared with the so-called normal child of the same age. But the basis of this dysfunction need not be in structural abnormality of the brain but, for example, may be on the basis of delayed maturation and thus the clinical picture may change spontaneously with time. Since "brain injury" is not an accurate term in many of these cases and since it carries with it connotations that may be upsetting to the parents or teachers who manage the child and thus be potentially injurious to the child's future management, we feel the term should be used only when the diagnosis can be properly substantiated. In place of this term, Dr. Cruickshank has suggested "these children" and with this term I will presently concur.

I wish to turn next to an aspect of the problem which is of increasing concern to me. Children with a cluster of behavioral symptoms are being widely diagnosed as "brain injured" or as having "minimal brain dysfunction" by teachers and others not clinically oriented or trained when in truth these children may not have the syndrome at all. On the basis of the erroneous diagnosis, some children are being labelled and managed and to what good this maneuver is, I am at present very uncertain and unhappy.

To illustrate, let me describe a 6½ year old boy who was

brought to us with the complaint of being clumsy, unable to write well, having poor reading skills, short memory, visual-motor difficulty, slightly below average I.Q., and needing special class placement and teaching methods. On close questioning, it was found that the mother knew of and agreed with the first two complaints, the school teacher had supplied all of the rest. We found on detailed examination evidence of minor abnormalities of motor function summarized from the practical point of view as clumsiness. Neuropsychological examination revealed a bright child with a verbal I.Q. of 139, performance I.Q. of 111, and neither the neuropsychologist nor I could find evidence of perceptual difficulty, poor reading, or short memory for auditory or visual images. He was clumsy and if he had to write relatively fast, his writing and his word production were poor and garbled. If the pace at which he was required to write was kept slow, he had good word production and showed no skipped words or mis-spellings. His writing was poorer than the average child for his age, but this correlated with his so-called clumsiness. From previous experience, we have witnessed this type of clumsiness improving spontaneously with time. Our recommendations were simple. We described the child's deficit in specific terms, reassured the parents of his intelligence and his reading ability, and suggested that in school some provision be made for this child's written productions to occur under somewhat specialized circumstances whereby he would not need to be pushed rapidly.

The points to be made at this juncture are these: a) some children with a few simple complaints are "diagnosed" by unskilled persons in places of authority by a process of "guilt by association" and this is not a worthwhile procedure; b) what is wrong with each of these children with school failure is not a "lumpable" quantity, "these children" need to be evaluated carefully so that the particular difficulty that each child has may be defined and the teachers be appraised of this so that they can aim their remedial teaching at the specific deficit. This method should be contrasted with assuming that if a child has one symptom of a syndrome, he has them all and then subjecting the child to a particular method of management which presumes he has a number of deficits which he does not have.

The next point comes perilously close to my talking to the

teachers about teaching, but it is not quite that. Many of these children with functional abnormalities appear to improve spontaneously with the passage of time, and probably with existence in a sympathetic home environment. Since this is so, evaluation of the effects of special methods of teaching upon these children is difficult. Thus, one cannot simply say that because a certain system of environmental manipulation (teaching) was applied, and since *paripassu* with this change the child improved, that the manipulation was the cause of the improvement. Instead, one needs to have some method of control built in to the testing system to account for the changes which occur spontaneously. When this is done, one then can begin to talk on a firm basis about one method of management being superior to another or to none at all.

Finally, let me point out that the pediatric neurologist has much to learn concerning the correlation between the abnormalities of neurological function noted on the examinations and aberrations of school performance. Does the pediatric neurologist have something of value to say to teachers? Sometimes we do, but not always by any means. We can rescue a child from a mis-diagnosis of behavior problem, environmentally determined, or "dyslexia" when the child is merely performing up to his I.Q. level but not to the I.Q. level of the class. We can differentiate subtle focal neurological abnormalities which may lead us to further evaluation and find that the child in truth has progressive organic brain disease or a seizure disorder. We can help the teacher understand certain neurological mechanisms which occur in some children who have poor reading and speech and have a form of receptive aphasia. However, in the great bulk of "these children" it is likely that a good neuropsychologist, a good language, speech, and hearing diagnostician and a special educational coordinator could, working together, provide the greatest benefit to these children. In some but not all of "these children" the pediatric neurologist has something of value to contribute.

DR. SCHNALL

I was particularly interested to hear several of the details of Dr. Cruickshank's talk today. One reason is that he and his collaborators are among a handful of people working in the area of minimal brain injury who have successfully replicated and extended some of the findings of one of my own teachers who has influenced me greatly. I have in mind Heinz Werner's work on figure-ground organization, and his diagnostic use of the marble-board test, which was, I believe originally designed by him in collaboration with Strauss.

I am going to try to use this time as a means for getting our speaker to talk some more. My questions and remarks will be somewhat disjointed in contrast to the well integrated set of questions raised by Dr. Rabe.

First, I think we all are struck, in hearing Dr. Cruickshank's talk and in reading the literature, by the frequent occurrence of developmental concepts in this field. Individuals such as Loretta Bender and Katrina de Hirsch have tended to use the notion of development as an organizing principle to bring together many of the observations on learning difficulties in psychopathology in childhood. Specific aberrant behaviors and personality disturbances are regarded as manifestations of maturational or developmental lab.

An extremely important parameter in the field of development which seems to be highly pertinent to Dr. Cruickshank's talk is that of hierarchical organization of perceptual and thought processes. Hierarchical organization would seem to be a very useful term in dealing simultaneously with the phenomena of dissociation and distractability. Both, in one sense or another, involve failures in the discrimination and coordination of what is "central" and "relevant" vs. "peripheral" and "irrelevant." Both seem to involve the subordination of particular detail to a more general frame of reference. Both seem to involve the relative ability to put off momentary gratifications or momentary responses in the fact of long-term or higher-order interests.

Thus, a general question, about which I would be interested in hearing Dr. Cruickshank elaborate, has to do with the extent to which developmental parameters such as hierarchical organization can be more fully exploited in the diagnosis of individual problems. I am personally dissatisfied with the

general term "developmental lag" or "maturational lag." It really doesn't seem to go far enough. If we refine the concept, making ample use of the many parameters of development, in effect, extending that which Dr. Cruickshank is already doing, we could better state why the children seem to be immature, and also in what particular respects immaturities pertain to specific learning tasks.

A second set of questions involve more specific points from Dr. Cruickshank's talk, and follows from the fact that I have a little bit of interest in statistics and the use of evidence. At the moment I am willing to admit to only "a little bit" of interest. It occurs to me that the description of the "Draw a Person" or "Draw Myself" material that Dr. Cruickshank presented, showing "the fingers not attached to the body" can be approached in more than one way. What he presented was a psychodynamic or motivational interpretation of the phenomenon, which stressed the child's remark that "after all, what have my fingers ever done for me?" In spite of this remark, the drawing strikes me as being an excellent example of dissociation, which Dr. Cruickshank claimed to be underlying the child's behavior in a different task. While my question stems from a particular instance, it may be stated more generally. Because the Draw a Person test and the Bender Gestalt are ordinarily used for making different kinds of diagnostic statements, and although called by different names, are they really measuring different things? I think that most clinicians would grant that there is considerable overlap, since we all make motivational judgments based on features of the Bender Gestalt. I wonder whether it would be meaningful and profitable to increase our use of structural interpretations of the Draw a Person. Is it not reasonable that children confronted with visual-motor difficulties in drawing may come up with extraordinarily clever rationalizations, such as "after all, what have my fingers done for me?" The child's remark, while significant in its own right, may be a secondary means for handling what is basically a visual-motor problem, as opposed to a problem of "self-image" in the psychodynamic sense. Incidentally, at this point, I do not mean to question the likelihood that "these children" have problems concerning their self-image. I am, rather, questioning the use of the evidence, and suggesting that

Dr. Cruickshank's own cognitive interpretations fit the drawing data as well as the psychodynamic interpretations.

Another question relates to the fact that on the Stanford Achievement Tests, getting one answer correct automatically leads to a grade of something like 2. I believe this is true of the Word Meaning sub-test of the Intermediate Stanford Achievement, the one with which I am familiar. When one starts with a score of zero at the time of initial testing, merely one correct answer on the follow-up test leads to a huge grade level change; a second correct answer doesn't lead to such a big change. My question is simply whether or not such insensitivity of the tests could possibly have contributed to the improvement shown by the children in the study. I did notice, however, that Dr. Cruickshank's results showed mean changes greater than two grade levels, and, further, I assume he was not using the intermediate, but the earlier form which is more sensitive. I gather from Dr. Cruickshank's nodding head that I have already answered my question.

A third set of remarks has to do with Dr. Cruickshank's description of teaching methods with the minimally brain-injured child. It strikes me that one of the main and extremely important messages that Dr. Cruickshank has delivered is that the instruction methods start where the child is. The methods are defined in terms of the kinds of conditions required in order for the child to deal with subject matter; and that, Dr. Cruickshank has made very clear, is a major educational implication of his work.

One thing that left me less satisfied, and I am positive this is because of the very short period of time that Dr. Cruickshank had to talk, has to do with the characterization of the *process* of change given the starting point. Dr. Cruickshank briefly mentioned bringing the child back into the regular classroom. How in the world do you do this? What are the psychological implications of doing this? What, indeed, are the psychological implications of taking a child who is ordinarily in a noisy environment, ("noisy" from any point of view) teaching him in an environment where there is relatively little noise, and then returning him to his original environment?

Dr. Cruickshank has described distractability as the kind of process we ought not to have. I wonder if distractability has any positive functions in the course of our everyday lives.

Might it provide us, without our consciously knowing it, with the little rests that we need in between tasks so that we do not become fatigued and, perhaps, through complex mechanisms, hyperactive? Dr. Cruickshank's method, which stresses the diminution of distraction, seems to work. But I would personally love to see further elucidation of the psychology of distraction; what its role is in everyday life and what some of the effects of severely hampering it might be even for the brain-injured child.

Next, the issue of attention span leaves me a bit puzzled. Psychologists, I have to say, probably know less about attention than they know about brain-injured children. How is attention span measured? From a psychological point of view — and I am positive it would have vast implications for education — can you illuminate for us some of your thoughts on attention which seems to be so critically involved in all the difficulties that all of these children have? Are efforts made to increase attention span? How in the world does one go about doing that?

Most of what Dr. Cruickshank has described has to do with the alteration of the external structures within which learning takes place. He has addressed himself very little to anything about the process of learning as conceived within the child. Are we to believe that these children learn the same way as ordinary children, except that they require a far more restricted environment? This might be, indeed, an optimistic finding! Is there, on the other hand, evidence that these children learn differently? Should our principles of instruction be different in accordance with possible implications of central nervous system dysfunction?

It occurs to me that the cubicle method may provide several secondary gains for the child. It does seem to set the child off as an individual from the rest of the world, and it may possibly give him an opportunity to see himself increasingly as a figure against a more homogeneous background than he ordinarily experiences (if you will allow my extending the notions of figure-ground into the area of self-image and self-perception). Further, the methods emphasize maximum individual instruction for each child, which is generally absent from most regular school settings.

In light of these features of the instruction methods, to

what extent can we distinguish between effects related to amelioration of perceptual or cognitive difficulties and effects related to growth of personality and enhanced motivation? The results of the methods seem to be interpretable from the point of view of both of these frames of reference. On the one hand an attempt is made to eliminate external extraneous stimulation, but, simultanously, emphasis is given to the individual attention that each child receives.

DR. DEVINE

I have to ask a question before I can react. Dr. Cruickshank, are these brain-damaged children, "these children," are they *Dyslexic?*

Dr. Cruickshank: If you tell what a *Dyslexic* is, I'll tell you what a brain-injured child is.

Dr. Devine: The reading people in the greater Boston area have been very interested in dyslexia for a variety of reasons. The recent state law (Section 46 K of Chapter 7 of the General Laws) providing for the instruction and training of children with certain learning impairments with possible implications for the role definitions of reading specialists, is a case in point. I think it is the general feeling among the reading people that we ought to do something about "these children." There are such children in reading classes, and we can't seem to teach them using the techniques of the reading teacher. Miss Kent, with whom I had coffee during the break, mentioned a boy with whom she worked for six or seven years and she never could really work with this youngster using the techniques of a remedial reading teacher. He probably was dyslexic or brain-damaged — he was one of "these children."

I think there is a general feeling that we have to do something with these youngsters. We've got them, they are in our classes, and we can't seem to work at this moment with these kids, using other techniques.

Now we also feel that we have to have a name for these youngsters. Maybe it is school-teacherish of me and these other teachers. I feel a little uneasy, talking about "these children." I wish they did have a name. "Brain-damage" is unacceptable, evidently, to some people. "Dyslexic" is not acceptable to us. We can single out some children and say they are emotionally disturbed. We can, to other children, say they are mentally retarded. I wish we had a name for these youngsters. I think there is a feeling of uneasiness among reading people. And this leads to the next point.

I believe there is a feeling, too, that we ought to have some kind of a test to discriminate these youngsters from the rest of the population. We don't seem to have the test, although I hear of such tests. But, I was very disturbed to hear one very well-known gentleman at a recent meeting tell me that you

could always tell the youngsters who were dyslexic because they were the tappers. If you notice, I have been tapping on the rostrum as I've made my recent remarks. I have been a tapper for almost 40 years. I don't think I'm dyslexic.

I wish we had, perhaps better tests or better-known tests. I'm a bit disturbed, personally, as well. My youngster went into first grade spelling his name S-A-M-O-H-T. Fortunately, he had a good old school marm to straighten him out. She taught him to go from left to right. He didn't know this; it's not an instructive kind of action. He spells his name correctly, now. But I have a terrible feeling that he might have gotten into the hands of somebody who would have said, "We've got a brain-damaged child. We've got a dyslexic," and he would have been herded off into some other track. He was successful with the regular children.

Well, there is a feeling that we ought to do something. Perhaps a feeling among the reading people that we ought to have a name for these children. A feeling that we ought to have some tests that are available for our *own* use, and then a feeling that perhaps we ought to have techniques which are *better known,* although I was much informed today.

My main point in reaction is that there is a feeling among the reading people in this area that *we might get stampeded.* There is a feeling that youngsters who can't be taught to read by the old techniques may be shoved along to some other avenue because they are branded "dyslexic." It is so easy to say that he is failing first grade reading because he is "brain-damaged" or he is "dyslexic." Maybe he's not. Maybe he just needs to learn his initial consonants or his final consonant sounds. These are my impressions from talking to the reading teachers in this area.

Maybe I should stop right here and let Dr. Cruickshank react to the panel's questions.

DISCUSSION
AND
QUESTIONS AND ANSWERS

DR. CRUICKSHANK

The questions that have been raised this morning from these three gentlemen are all very thoughtful. I will start out with the last question and work backwards and, in view of the time limit, I shall give only some superficial reactions. We might do well to discard the term "dyslexia" and dump it where all the tea went, for dyslexia is a symptom only. The problem with which we are concerned today is much broader than dyslexia, so let's not get blocked on this term, or even become prideful of it.

One thing I am very much concerned about is that we don't confuse whatever we were talking about today with the concept of remediation. This is not remedial reading. Nor is it remedial arithmetic or whatever one does under this name. Many programs are falling flat on their faces because this problem is being placed solely in the hands of remedial reading teachers. I have very great respect for the reading process and reading specialists, and have spoken to their associations on many occasions. But this problem cannot be solved by the remedial reading teacher under the present methods of preparing reading specialists. One can't remediate something when there is nothing there to remediate. Rather than remedial methods, we must start with the wisdom that we have and the ingenuity that master people in education have in conceptualizing a new or different approach which will finally "teach" this child, not merely remediate. You can't remediate reading if he doesn't read. He has lived through 5, 3, or 2 years of reading instruction and still can't function. In most school systems I see these children's needs being complicated — not being met — because we get them to the remedial reading teacher or clinic, the remedial speech clinic, or the arithmetic diagnostic center that has been founded on the concepts of reteaching when there is nothing to correct.

Now, I'm a bit concerned about the issue of testing, which was mentioned. True, we probably need more refinement in the psychological clinic, but there is an awful lot of that in there already. I don't think it's necessary to put a youngster through all the gyrations that we in psychology put him through in terms of the *WISC*, for example, and the *Stanford-Binet*, and certain other tests. But there are a whole lot of elements in the *Children's Wechsler* or in the *Stanford-Binet*

which are extraordinarily valuable in giving someone an insight as to how this child perceives or how he approaches a task. The *Benton Visual Acuity Test* is a very valuable adjunct as is the *Bender-Gestalt Test,* or certain aspects of the *Rorschach,* or certain or all parts of the *Wechsler,* or many that your very close friend, Heinz Werner, produced. I don't think we need anything more . . . we've got plenty . . . if we have people who know how to use what we know and who put the pieces in the mosaic properly.

I don't believe that we should back away from action programs simply because everything we do has not yet been determined. At least I can't. I get too involved with human beings. What I see is a need to pool what we have to work with and hope that some others will come behind us to modify what we have done as I and others came behind Straus and Werner and modified some of the things that they did. Now, my students are modifying things that I do. This is progress and this is growth and no one should be threatened.

I, too, am very much concerned about terminology. We cannot stop, however, while we are worrying about words. I'm faced with children as is everyone else. I think we'll come, sometime, to a better understanding. I spent a very interesting few days some months ago with a group of people whose vocabulary I understood only in terms of the conjunctions they used. This group was composed of aero-space research men, physiological neurologists and others. These people are on a frontier that I hope someday I might understand. It's not beyond a dream of reality as they see it, of literally tying in to every cell in the cortex or in the human brain as a whole. Just think what this would mean diagnostically. I know we can't do it now, but there are those who have blue-printed ways to do it. Maybe 10 or 20 years from now we'll be able to spell this out. I have a deep-seated feeling that when we do, we are going to find that many of "these children" for whom we now have no label, or for whom we misuse the term "brain injury", will fall into this latter category and we will find that it comes close to applying to what's there. We don't know yet what the impact of a developmental difficulty, of a mutation, or any other modification of a single cell may be on the total perceptual life — the developmental life of the human organism. Some of the material that is coming out of the

Perimatal Laboratory in Puerto Rico, dealing with infrahuman organisms, essentially monkeys and chimpanzees, is making us very thoughtful about what is the impact on the total organism of the damage of microscopic cellular tissue. However, no one has yet determined what the damage to a single cell is, and I don't suppose that they could very easily do that yet. But this is coming, and pretty soon we'll have that brain in blueprint form — not just in terms of big areas, the lobes. The goal of the scientists that are working on this area is in terms of single cells. Let's just be patient with vocabulary.

Once upon a time, I said maybe we ought to just write off a generation or two of children until we have all these nice things worked out. But then someone said, "You can't, particularly if it's your own child." So we must serve the best way we can, and I'm sure this is the way progress in medicine, science, religion, and ethics has been made over the years.

I am just as disturbed as everyone else about the inadequacies of the field in which I am in — in which we all are in. But I have educated myself to tolerate inadequacies, I guess, and I think this is what we must all do; not with the notion that we will continue to persevere on the slip-shod methods that we have to bring to it, but that these are steps along the way. I talked to Heinz Werner once and he was recapitulating for me the changes that have occurred, since he arrived in America, concerning the knowledge and understanding in the problems in which he was deeply interested. He talked for almost two hours. It was an education to me to hear things that he said which we accept as commonplace in our understanding of professions, but which were foreign concepts when he arrived in America just a few years before. So, you see, we do make progress. Sometimes it is so close to us we can't see it. You mentioned, Dr. Schnall, the concepts of *de Hirch,* which are extraordinarily vital. We must keep up with her things. *Katrina dė Hirch* is forcing many of us to think differently, particularly in terms of how we mold our concepts, which are rather cross-sectional and horizontal, into the developmental pattern that was so very neatly discussed here in a few moments by Dr. Schnall. This is a major area of research.

I will just make one or two further observations and then, I think, we should take a few minutes to go on to some questions from the floor.

Children are clumsy. They are clumsy for a reason. What is the reason for their clumsiness? The clumsy attitude of a child — I mean the physical attitude — is oftentimes one of our best clues of deep-seated psychopathology. When I see a ten or eleven year old child walking up the stairs ahead of me and catching the sole of his shoe on one or two of the risers, it's important to me to look much more thoroughly into what is the psycho-pathological make-up of this child. Not always do they go hand in hand, but this is a very important clue. The differentiation between verbal mentality and performance mentality was indicated here. This is a typical pattern of the children that we see. High verbal, low performance. Why low performance? Performance behavior as it must be measured in terms of a test, comes out with visual motor development or audio-motor development. Visual motor behavior isn't just something off in a corner by itself. It's a dynamic aspect of the child's behavior. And if the child is showing a poor motor development or motor performance in relation to verbal intelligence, this is the result of something inherent within him. What is it that is causing this behavior? It may be, — not always, — but it may be his inability to translate on any sensory basis, which means on any neurological basis, that which he sees into reality.

Question: These Children. Are they going to be further damaged if they are started on the wrong foot by a free nursery school or kindergarten atmosphere?

Dr. Cruickshank: The question is: Should these children be in permissive environments? I believe that these children have great difficulty in a permissive environment. Within our structured concept we give no choice. This is an adult dominated environment. Why? Because a child can't make choices if he has never had a success experience as a result of choice. When we ultimately say to the child, "Would you like to eat your lunch today in the center of the room or in the cubical?" This is the first time a choice has ever been provided to him. This is why whenever we give a choice, we also have to have a safety valve. If he should get tense, scared, angry, excited, tired, whatever word he understands, he may always go back to the cubical — he may always retreat with honor to the place where he was comfortable, where he had success experiences.

This is the first time choice is given, and the entire staff is watching this child to see what happens in this choice situation. We go further. When a child comes in in the morning for the first time and we orient him to the classroom: "You hang your coat and hat up on this hook." Not any hook, but on a specific hook, in a given way. "Your hat goes in this relation. Your lunch box goes here." He cannot tolerate choice if he has no basis for success in anything. And if we go back and analyze the early experiences of these children since the day they were born, most of them have had practically no *bonafide* success experiences. Here is mother, who for 9 months was anticipating the arrival of her newborn child. After a few hours, the baby is handed to her to nurse. This is a concept that has tremendous significance in our culture — nursing. Here is a child, who for some reason or another hasn't learned to suck. This is usually something that happens intra-uterally. It may be because there is some sort of a developmental problem, we don't know. At any rate, mother, instead of having a successful experience with her child, has had a failure experience, and the child has had a failure experience and tension is created. The child finally falls asleep and the nurse says, "We'll take him away and bring him back in a few hours and try again." Now the mother doesn't approach the child in quite the same way. She's questioning, "Is it going to work this time?" And it doesn't. Feeding becomes a problem. We have the beginning of a failure experience within 18 hours. And in many of these kids, particularly in the primary studies, we can see the failure experience within a few hours of our time. So, pretty soon he doesn't sit up, he doesn't walk quite as fast, doesn't talk quite as fast, and the rest of it . . . And then about the time he's four he achieves a certain neurological structure that provides him with enough motility and other kinds of skills that he wants and needs, and at this point he says: "Ah ha! They've been wanting me to walk and talk all these years and boy, I'm gonna show 'em now!" So, here's the child as Dr. Rappaport reports: At five a.m. he's out of bed; 5:03 he's in the kitchen; 5:04 he's got the pans out; 5:05 the sugar mixed with flour; at 5:09 he's treading in it. At 5:10 he's climbing the drapes in the living room, and at 5:13 he's knocked off a lamp, and mother hears this and comes down and there starts another day of tragedy. The overt situation of

mobility and motility is a characteristic of these kids, often in terms of making up for lost time and trying to provide a basis for achieving the applause of the parents. "They wanted me to walk and when I walk, I'm not getting success." The parents aren't either. So we have youngsters who come to us by the time they're six years of age, who are very confused as to their role and what their appropriate relationship is with adults. It is not more permissiveness that they need, but more structure.

Question: I'd like to address a comment to Dr. Rabe's statement that there is difficulty in establishing a causal effect between the therapeutical school environment and the eventual adjustment the child makes, say at 15, when biology takes over. But the implication of that, which I was concerned about, was that the child would be at the same place no matter what we did in between. I think that in view of the preventive approach we can't really accept that. I wish you would comment on that a little bit.

Dr. Cruickshank: I don't know as I can comment on it. I don't think Dr. Rabe meant what you picked up. While we don't, again, have enough children from which to generalize, I'm sure he, as well as many of the others, and I, too, see that by the time these youngsters achieve 15 and 16 years of age, many of the symptoms for which they were initially referred, no longer exist. I was hinting at this in terms of those two groups of cerebral palsied children. This isn't universally true. The ambulatory child, in whom we know there is neurological impact of some sort, when he reaches 15 years of age, functions almost like the non-cerebral palsied child. Maturation, apparently, is on our side, fortuitously. If it weren't, we would be in real trouble. It is on the side of many of these children. With spastic children, maturation is not so helpful. The spastic child at 16, which is the oldest age that I ever had the privilege to study groups of these children, still is a very damaged child, psychologically. I suspect that many, many, many of the kids with whom we work, if we simply left them alone, would appear quite normal at 16 or 17, in terms of psychological and other kinds of testing. The problem, however, that Dr. Rabe, and I'm sure everybody else in the room is concerned about, is what happens to the child while maturation is taking place.

What I would like to see is a technique of education and psychotherapy developed that would take things into account in a developing organism and try to accentuate the positive aspects of normal development, so that while the child is maturing, we are also concurrently working with him in an educational method which supports his deviant perceptual behavior and permits him to arrive at a point of 13, 14, or 15 as a reasonably well-integrated individual, emotionally and socially.