

Precision Teaching the Learning-Disabled Child

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DURING THE PAST two to three decades, debate has flourished, sometimes heatedly, sometimes quietly, with regard to the etiological basis of that which is called *learning disability*. Two main distinctions have emerged from this debate. One is that neurological dysfunction appears to be the cause of learning disabilities, and the other is that such disabilities appear to be emotional in origin. This differentiation is illustrated by the fact that the U.S. Department of Health, Education, and Welfare funds separate teacher-training programs: one for teachers of emotionally disturbed children, and another for teachers of children with learning disabilities. As a result, the term *learning disabilities* has, over time, become more identified with neurological dysfunction.

It is not our intention to become involved in such debate, nor to tilt imaginary windmills, but rather to suggest that whatever the cause, a common denominator does exist between these groups: the behavior of the child. Whatever the original cause, we suggest that the bulk of those behaviors that can be observed in any child, learning disabled or not, can be explained by the laws of learning and can be altered by the systematic application of these same laws.

Operant theory suggests that when meaningful and appropriate stimuli are presented in optimal increments, the desired response should take place, and if that response is followed by a meaningful consequence, the probability is increased that the behavior or re-

response will occur again. In educational terms, this means that when a meaningful and appropriate curriculum is presented to the child in understandable, sequential steps, and he is adequately rewarded for responding correctly to those steps, learning will take place. This will be true whether the learning involves reading a sentence or walking a balance beam, increasing attention span or reducing temper tantrums. It will occur whether the child's learning disability is neurological or emotional in origin.

The following is a description of a program that was originally designed to remediate the academic and social difficulties of severely emotionally disturbed children, but which was subsequently found to be equally effective with those children who are traditionally called *learning disabled*.

The Therapeutic Education Center in the San Francisco Unified School District began operation in October, 1969, as an ESEA Title III Project. It was designed to serve the educational needs of twenty "severely emotionally disturbed" children between the ages of six and nine who had been unable to function socially or academically in ordinary public-school environments. The program was housed in a private residential facility designed to meet the needs of adolescent girls having difficulty in the community. It was, however, maintained completely as a separate unit from any other program in the facility.

Three separate self-contained classrooms were maintained, organized chiefly on the basis of age groupings, each with six to seven students, a teacher, and a teacher's aid. One additional aid was included on the staff in order to deal with the highly individualized needs of these severely disabled children. In addition to the teaching and teaching-assistant staff, the center included a director as well as a part-time social worker. Even though a token economy system was utilized during a large part of the first year, in which the child could obtain concrete prizes, such as edibles and toys, the program moved away from this type of reinforcement system as quickly as possible and attempted to replace these reinforcers with those normally found in the natural environment, such as free time and curriculum choices.

Psychiatric diagnostic formulations on the twenty children who were in the program during the first year's operation are shown in Table 1. These diagnoses were determined before the children entered the program. It should be mentioned that it was our impression that some of the most severely disabled children in the program were among those who had, at that time, no formal diagnosis whatsoever.

A count was also made of the number of times specific behaviors were mentioned by the referral source in the reports on the children who were referred and accepted into the program. Table 2 presents the frequency of the listing of such behaviors.

TABLE 1

Number of Pupils	Psychiatric Diagnosis
9	None
2	Adjustment reaction of childhood with conduct disturbance
1	Severe behavior disturbance with chronic anxiety
2	Autistic
2	Schizophrenic
2	Schizophrenic personality with neurotic traits
1	Schizoid
1	Unable to determine

TABLE 2

Number of Pupils	Behavior
16	Immature
10	Hyperactive
9	Aggressive with peers
9	Short attention span
8	Withdrawn
7	Aggressive with adults
6	Temper tantrums
5	Destructive
4	Impulsive
4	Limited speech
2	Self-mutilating
2	Stereotype motor activity

It became immediately apparent that a majority of the children included in the program evidenced many of those symptoms suggested by A. A. Strauss and his associates, and further delineated by Schwalb et al., as indicative of brain damage or minimal cerebral dysfunction.¹ Schwalb suggests that a diagnosis of minimal brain damage or minimal brain dysfunction is based on a behavioral symptom complex consisting of hyperactivity, impulsivity, short attention span, perseveration, near normal, normal, or above normal IQ, specific learning problems such as visual-perceptual problems, poor auditory discrimination, memory problems, mixed laterality and/or right-left disorientation, and coordination problems particularly in tasks requiring fine and rapid motor coordination.²

Upon closer examination, five of the twenty children included in this program, though originally referred because of severe emotional disturbance, evidence a sufficient number of the symptoms to allow them to be designated as children with some form of neurologically based learning disorder. Three of the twenty children had been placed in special programs for neurologically handicapped children prior to entry into the Therapeutic Education Center program.

The major objectives of the Therapeutic Education Center program were (1) to decrease the frequency of those behaviors that ap-

peared to get the child in trouble within the normal environment and to increase the frequency of those behaviors felt to be desirable within that same environment, and (2) to increase his academic skills (reading, spelling, and arithmetic) to the point where the child would approximate grade level upon his return to the regular school program.

Essentially, the Therapeutic Education Center program provided a behavior-modification framework and, more specifically, a precision-teaching framework that combined a carefully programmed curriculum and a contingent environment, within which the consequences for behaviors and academic skills were made apparent and readily available to the child for specific behaviors. Activities within the program were as follows:

- Two sets of parallel contingency operations: (1) those that were activated when it became necessary to manage an unacceptable behavior; and (2) those in continuous use for the purpose of positively reinforcing acceptable social behaviors and academic skills.
- Individualized step-by-step programming to promote change in both social behavior and academic-skill attainment.
- Precision measurement projects designed to: (1) measure the frequency with which given behaviors occurred within a defined parameter; (2) record the frequency of those behaviors during a program designed to promote change; (3) determine whether or not change had taken place and, if not; (4) make further change.

The approach to learning was individualized and progressed through the following framework:

- The teacher's assessment of the child's level of functioning.
- Sequential academic programming, which started at the child's achievement level and progressed to the next level of complexity on the basis of an 80 percent-accuracy criterion.
- One-to-one and/or small group learning situation.

Even though a behavioral framework was established at the beginning of the program, the actual initiation of the precision teaching and management projects was somewhat slow in getting started during the first year. The following is a summary of those projects that were initiated and carried on during the period from February 1 through June 15, 1970.*

DURING THIS period, 122 individual precision projects were established in our work with the twenty children who participated in the center program. The bulk of these projects were academic in na-

*For a more complete description of precision charting techniques, see Bradford, "Precision Teaching: A Useful Technology for Teachers," Section I, Chapter 3, pp. 31-39.

ture, and this was not a chance occurrence; it was felt by the staff that the preferred way to deal with many of the behavior problems that were occurring was via the development of academic skills. In this way we attempted to develop positive behaviors that were incompatible with those negative behaviors that frequently caused the child to get into trouble in the normal environment. For example, if one of Johnny's problems was that he continually got out of his seat, we might find it more appropriate to pay Johnny off, so to speak, or to reward Johnny for doing arithmetic problems (which required that he remain in his seat). By so doing, we managed to accomplish two purposes with one project; first, to develop academic skills, and second, to decelerate the frequency of a behavior that normally caused the child a great deal of social difficulty. In this way, we not only obtained two behaviors for the price of one, we were also able to pay a great deal of attention to the positive aspects of the child's growth rather than continually focusing upon those negative behaviors which, in many cases, had existed for a long time and often received a great deal of attention. It should be pointed out that this may well have provided reinforcement for the negative behaviors, about which we have long been concerned. This does not mean, however, that we did not set up specific behavior projects - we did. Of the 122 projects, twelve were behavior-deceleration projects, that is, projects specifically designed to decrease or decelerate the frequency with which certain "undesirable" behaviors occurred over time. Talking out in class, getting out of seat, and hitting other children are examples of such behaviors.

Eight behavior-acceleration projects were initiated, involving those behaviors that the staff felt needed to be increased in frequency in individual children. These were primarily social-interaction skills and involved, for the most part, increasing conversational skills of the children with their peers and the staff.

In addition, ten special behavior projects were maintained for a ten-week period from February through May, 1970 with five children who evidenced aggressive behaviors during the recess periods. The remaining 92 projects focused upon the acceleration of academic skills in reading, mathematics, and language. The results of these projects can be seen in Tables 3 through 9. In addition, *Wide Range Achievement Tests* were administered to each child upon entry into the program, and again at the end of the school year.³ Results of these tests will be discussed later in this paper.

AN EXAMINATION of Tables 3 through 9 reflects some very interesting similarities as well as differences. When we compare the results from the five children designated as learning disabled with results from the total group, we find two immediately apparent differences. First, in the projects that involved development of social behaviors, we find that even though there were twelve behavior-acceleration projects designed to increase the rate at which certain positive social behaviors were occurring, not one of these twelve

projects involved any of the children designated as learning disabled. However, on the eight behavior-deceleration projects designed to decrease the rate at which certain undesirable social behaviors were occurring, seven of these eight focused upon behaviors of those children designated as learning disabled. This at least raises the possibility that the learning-disabled child presented more clearly defined negative social behaviors that the staff felt were in need of modification. This was true even though, at the time these projects were initiated and maintained, absolutely no differential diagnosis of learning disability versus emotional disturbance had been made by the staff.

The second obvious difference was in the area of the academic projects. All three of the writing projects that were initiated involved the learning-disabled children, while three of the five language projects involved these children. This would appear to be somewhat disproportionate since the population that we have defined as learning disabled involves only 25 percent of the total population in the program. However, this finding does not appear to be unusual in view of the fact that perceptual-motor and language problems have been clearly defined as areas in which the learning-disabled child frequently manifests specific difficulty. Interestingly enough, projects developed on children who seem to have problems of attention do not suggest that this group was different in behavior, in that exactly 25 percent of the attention projects involved learning-disabled children, while the other 75 percent involved the balance of the children in the program. The balance of the project data would also suggest that the learning-disability children were remarkably similar to the rest of the children in their response to precision projects.

Tables 3A and 3B present a direct comparison of the number of days it took before the effects of a specific intervention procedure were noted in terms of a change in frequency of a specific behavior rate. In other words, these tables tell us how long it took us to begin to modify the behavior of concern. For example, in Table 3A we see that, for the total population, the projects indicated that it took from one to five days to begin to see a change in the reading skill upon which the project focused, with the middle number of days required being only one. Table 3B shows the same data for those projects involving learning-disability children. In this case it took from two to three days to begin altering behavior, with a middle number of days of two. In the area of mathematics, with the total population, it took from one to three days to begin to see the effect of the change on math skill behavior, with a middle number of days of one, while for the learning-disability group it took one day for a change to begin to have an effect.

Tables 4A and 4B present the acceleration rates for the specific projects for both the total population and for the learning-disability children. In the area of reading, we find that the acceleration rate of the total group in this particular skill ranged from 0 to 2.3, with a middle acceleration rate of 1.6. This is simply to say that the pro-

TABLE 3A
Days Before Behavior Begins Modifying
Total Population

	Range	Middle
Behavior Acceleration	1-40 (2 failures)	1
Behavior Deceleration	1-6	1
Reading	1-5	1
Math	1-3	1
Writing	1-5	1
Language	1 - Unsuccessful	Unsuccessful
Attention	1-15	1
Special Behavior	1	1

TABLE 3B
Days Before Behavior Begins Modifying
Learning-Disabled Children

	Number of Projects	Range	Middle
Behavior Acceleration	0	-	-
Behavior Deceleration	7	1-5	1
Reading	4	2-3	2
Math	11	1-1	1
Writing	3	1-5	1
Language	3	1-Unsuccessful	Unsuccessful
Attention	2	?	1
Special Behavior	2	1	1

jects multiplied the group's reading rate at a particular difficulty level by an average multiple of 1.6 per week. For the learning-disability children, we find that the acceleration rate for reading ranged from 1.6 to 2.0, with a middle acceleration rate of 1.8. In other words, the learning-disability children increased their reading rates at a specific difficulty level by an average of 1.8 per week.

This does not mean that all children were working at the same difficulty level. It simply means that at whatever difficulty level individual children were working, we were able to increase the rate at which they were able to perform that particular skill by the multiples indicated. We were then able to designate a particular proficiency level that had to be reached before we changed the curriculum to a more difficult performance requirement.

TABLE 4A
Acceleration Rates
Movements Per Minute Per Week
Total Population

	Range	Middle
Behavior Acceleration	0-5.0	1.5
Behavior Deceleration	1.4-3.2	2.0
Reading	0-2.3	1.6
Math	0-5.0	1.6
Writing	1.4-3.0	1.6
Language	0-1.1	0
Attention	0-2.0	1.3

TABLE 4B
Acceleration Rates
Movements Per Minute Per Week
Learning-Disabled Children

	Range	Middle
Behavior Acceleration	-	-
Behavior Deceleration	1.4-3.0	2.0
Reading	1.6-2.0	1.8
Math	1.3-2.6	1.6
Writing	1.4-3.0	1.6
Language	0-1.1	0
Attention	?	?

TABLE 5A

Error Deceleration
Total Population

	Range	Middle
Reading	1.5-4.0	2.3
Math	1.4-10	2.5
Attention	1.5-1.8	1.5

TABLE 5B
Error Deceleration
Learning-Disabled Children

	Range	Middle
Reading	1.5-1.8	1.8
Math	1.8-4.5	1.8
Attention	?	?

Examination of Tables 5A and 5B provides a comparison between the total group and the learning-disabled children with regard to the rates at which we were able to decelerate the errors that they were making in their specific skill subjects at their individual difficulty levels. By maintaining both projects on rates of correct performance and rates of error performance, we were able to see that the child eventually obtained a 90 percent ratio of correct responses to error responses, as well as requiring that he reach a particular frequency of responses per minute.

Tables 6A and 6B present the comparison of the overall time factor for the precision projects for both the total and learning disability groups. Here again, though we find individual variations, these do not appear to be significant.

Tables 7A and 7B present the number of minutes per day devoted to the measurement of the specific behaviors noted. For example, in Table 7A we find that the middle number of minutes devoted to reading projects was one. This simply means that the average measurement of the child's reading skill per day required one minute of time. This does not mean that only one minute per day was devoted to reading.

TABLE 6A
Project Time in Weeks
Total Population

	Number of Projects	Range	Middle
Behavior Acceleration	12	7-15	9
Behavior Deceleration	8	2-18	5
Reading	20	5-18	13
Math	56	2-25	18
Writing	3	6-13	11
Language	5	7-9	8
Attention	8	9-16	12
Special Behavior	10	12	12

TABLE 6B
Project Time in Weeks
Learning-Disabled Children

	Number of Projects	Range	Middle
Behavior Acceleration	0	-	-
Behavior Deceleration	7	4-12	9
Reading	4	5-14	10
Math	11	4-20	9
Writing	3	6-13	11
Language	3	7-9	8
Attention	2	?	?
Special Behavior	4	12	12

TABLE 7A
Project Time: Minutes Per Day Per Project
Total Population

	Range	Middle
Behavior Acceleration	5-60	10
Behavior Deceleration	10-120	10
Reading	1-5	1
Math	1-5	3
Writing	1-5	1
Language	5-10	10
Attention	1-5	5
Special Behavior	10	10

TABLE 7B
Project Time: Minutes Per Day Per Project
Learning-Disabled Children

	Range	Middle
Behavior Acceleration	-	-
Behavior Deceleration	10-120	10
Reading	1	1
Math	1-5	3
Writing	1-5	1
Language	5-10	10
Attention	-	-
Special Behavior	10	10

Tables 8A and 8B reflect the number of changes made per project for both the total population and the learning-disabled children, and the percentage of these changes that involved antecedent conditions (curriculum), and the percentage that involved subsequent conditions (reinforcement). Changes were made when the child reached a particular proficiency level that we felt was necessary before a more difficult requirement was established. For example, it might be required that Johnny show that he was able to solve single-digit addition problems at a rate of ten problems per minute, with only one error per minute before we moved him to double-digit addition problems. In this way we allowed the child's behavior to guide us in curriculum change rather than making the change without appropriate feedback.

TABLE 8A
Number of Changes Per Project
Total Population

	Range	% Antecedent	% Subsequent
Behavior Acceleration	1-4	42	58
Behavior Deceleration	0-7	36	64
Reading	4-10	89	11
Math	0-12	75	25
Writing	2-5	90	10
Language	0-1	50	50
Attention	1-7	63	37

TABLE 8B
Number of Changes Per Project
Learning-Disabled Children

	Changes	% Antecedent	% Subsequent
Behavior Acceleration	-	-	-
Behavior Deceleration	1-6	40	60
Reading	3-10	82	18
Math	2-8	70	30
Writing	2-5	90	10
Language	1-3	70	30
Attention	2-4	75	25

Table 9 reflects the results of ten special behavior projects that were initiated to reduce the frequency of aggressive behaviors on the playground during recess and lunch periods. Five children were in-

TABLE 9
Frequency of Aggressive Hitting Behaviors on the Playground

CHILD HITS OTHERS					
Child	Hitting Rate Before Consequence	Decel. Rate Per Week Before Cons.	Rate After "No Bars" Consequence	Change To Small Playground	Return To Large Playground
A	.4*	0	0	.3	0
B	.5 to .2	1.5	0	.2	0
C	.35	0	0	0	0
D	.5	0	0	.2	0
E	.4 to .2	1.6	0	.1	0
OTHERS HIT CHILD					
A	.7	0	0	1.0	0
B	.5	0	0	.4	0
C	.2	0	0	0	0
D	0	0	0	.1	0
E	0	0	0	.2	0

*.4 = hitting at rate of four times every ten minutes.

volved, two of whom were learning-disabled children, namely *child A* and *child B*. We had observed a high rate of hitting behavior during recess time; for example, column one in *Table 9* shows that *child A* hit other children at the rate of four times every ten minutes, and so forth. Columns one and two reflect the rates of hitting prior to the establishment of a special consequence, while column two reflects the rate at which the behaviors were decelerating under the normal conditions prevailing at that time. Column three reflects the hitting rate after an aversive consequence was established by refusing to allow the children to play on the bars if they hit anyone. As can be readily seen, hitting stopped immediately in all five cases. Column four reflects an interesting situation. It became necessary, for a brief period of time, to move from a very large playground, where the children could, if necessary, avoid one another, which facilitated the reduction of hitting behaviors. Upon change to a playground approximately one third the size of the larger playground, we found that hitting behaviors again developed, though not at the rates at which they had previously occurred. Upon return to the large playground, we found that hitting behaviors again disappeared. It is important to note here that these modifications occurred in all cases, whether the child was categorized in our data as learning disabled or emotionally disturbed.

Finally, in addition to the behavior projects, an attempt was made to complete a *Wide Range Achievement Test* on each child upon his entry into the program, and again in May of the school year. Since this was the first year of the project, many of the children came later in the year, and had been with us only a few months by the end of that school year. As a result, we have broken down the test results into progress per month during the ten-month school year. The concept of grade level implies that during the ten-month school year, the child will grow one grade level, on the average. Therefore, in *Table 10*, the figures represent months of academic skill growth per month. This means, then, that for the total population, the average growth per month was one month gain in reading skills, .8 of a month gain in spelling skills, and 1.3 months gain in arithmetic skills. For the learning-disabled children there was a gain of .9 of a month growth in reading skills per month, .8 of a month growth in spelling skills per month, and .8 of a month growth in arithmetic skills per month.

TABLE 10
Monthly Gain in Academic Skills

	Reading	Spelling	Arithmetic
Total Pupil Population	1.0	.8	1.3
Learning-Disabled Children	.9	.8	.8

IN ORDER to more clearly demonstrate the precision-teaching approach to children in this project, let us look at one particular child within the learning-disabled group. This eight-year-old girl entered

the project from a special education program for educationally handicapped children outside the San Francisco school district. At the time of entry into the program, she presented a majority of symptoms mentioned previously that suggest a neurologically based learning disability: she evidenced poor perceptual-motor skills, poor motor coordination, poor memory, bizarre behavior, and she was extremely hyperactive. On the *Wide Range Achievement Test* she obtained a reading score of 1.1, a spelling score of 1.0, and an arithmetic score of .9. At the time of entry she made loud and disruptive noises in the classroom at the rate of approximately 1.5 per minute and was out of her seat approximately three times every ten minutes, or once every three minutes. It was determined by the staff that before any academic skills could be worked on effectively, it would be necessary to gain behavior control of this child, and a hierarchy of priorities was established. Two projects were initiated immediately that focused on reducing the frequency of occurrence of out-of-seat behaviors and noise episodes. *Charts 1* and *2* show the results of these projects. Within a period of four weeks, out-of-seat behaviors had been reduced to zero during the entire morning period in class. In this case we did not ignore the behavior as one might think would be advisable. Instead, we simply placed the child back in her seat as soon as she left it, with instructions for her to remain there. The results suggest that this was sufficient.

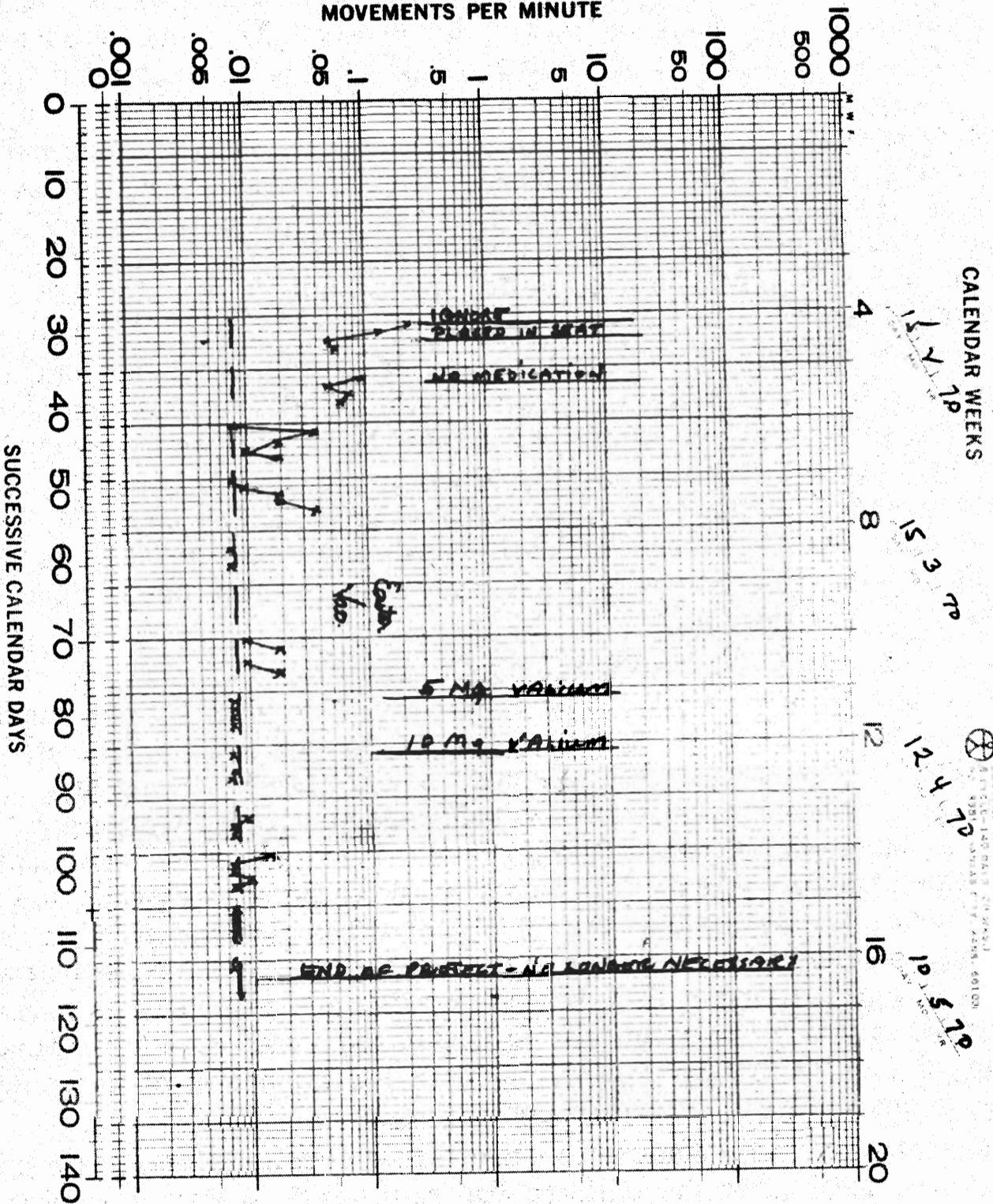
With regard to the noise episodes, an examination of the chart will show that we initially asked the child to be quiet for one minute at a time, and if she was successful in achieving this one minute of quiet, she was then given one minute of free time to do anything she pleased. Through a series of four changes, the time requirement for being quiet was extended to ten minutes in exchange for one minute of free time. At this time the child showed some regression in the frequency of noise behaviors. It is interesting to note that the increase in noise behavior occurred at the same time as medication was prescribed, and at this time an aversive consequence was established, in which the child was no longer given free time but instead had a token taken away for talking out or making noise. At this point the frequency of the behavior decelerated to zero.

Charts 3 and *4* show that specific academic projects were not initiated until after the children had returned from Easter vacation and this child's social behavior charts indicated that both her out-of-seat and noise behaviors had been reduced to a point where such projects would be effective. At that time, two projects were initiated: an arithmetic project, which focused upon her ability to do simple addition problems, and a reading project, which utilized the Dolch word list (Garrard Publishing Company, Champaign, Illinois).

Charts 5, 6 and *7* show the results of these academic projects. We now had a very desirable situation. The child had an opportunity to be reinforced or rewarded for engaging in academic skill-producing behaviors that were incompatible with the undesirable social behaviors in which she had engaged previously. In other words, she could

CHART 1

MOVEMENTS PER MINUTE



BRADEEN
TRAINER

CRINIO
ADVISER

SHARON + STEVE
MANAGER

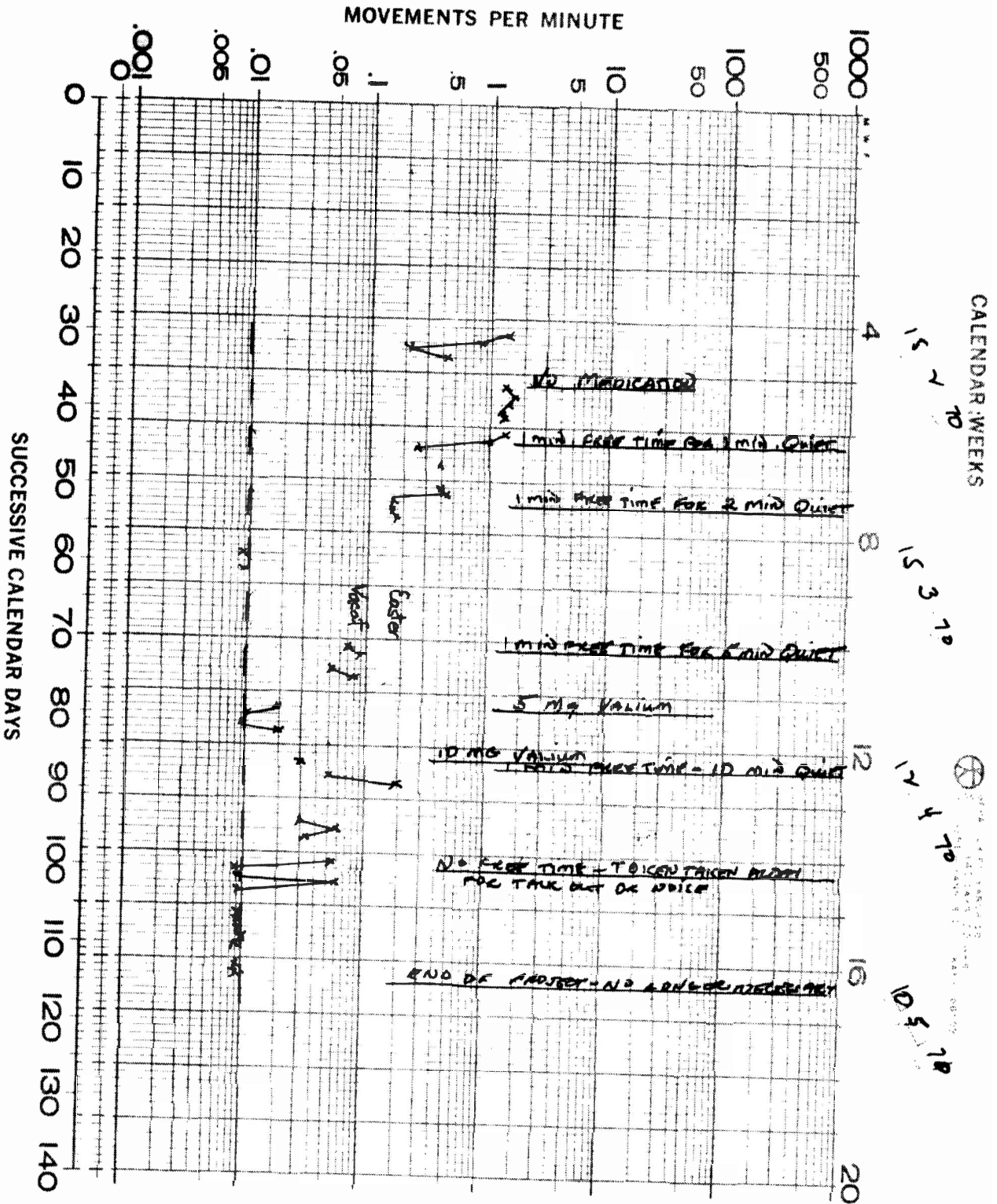
MARY
PROTEGE

7
AGE

LABEL

OUT OF SEAT
MOVEMENT

CHART 2



Cawick
ADVISER

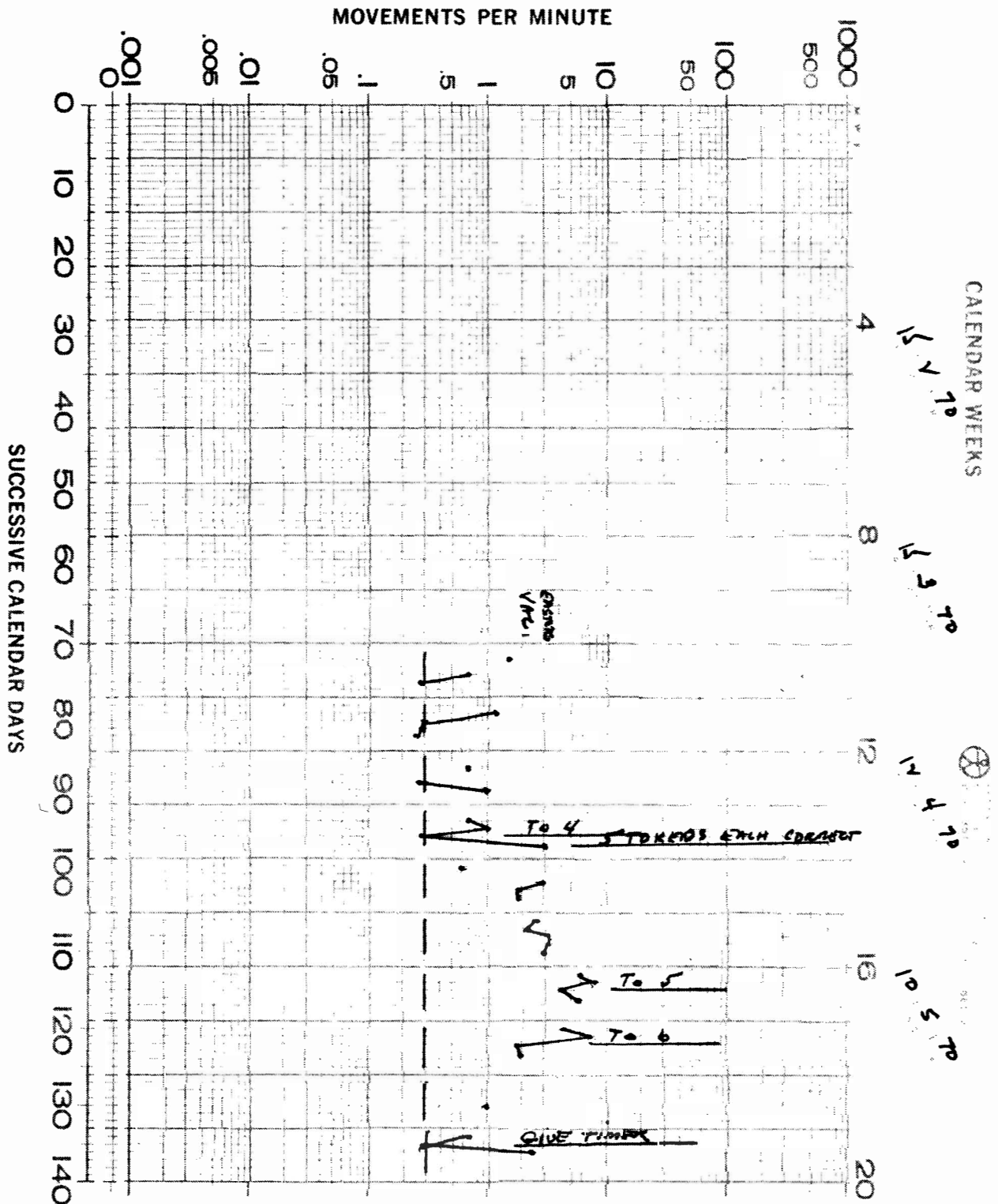
MARY
PROTEGE

7
AGE

LABEL

Nasser
Episodic
MOVEMENT

CHART 3



BROADFIELD
TRAINER

CRINER
ADVISER

SHARON
STIVE
MANAGER

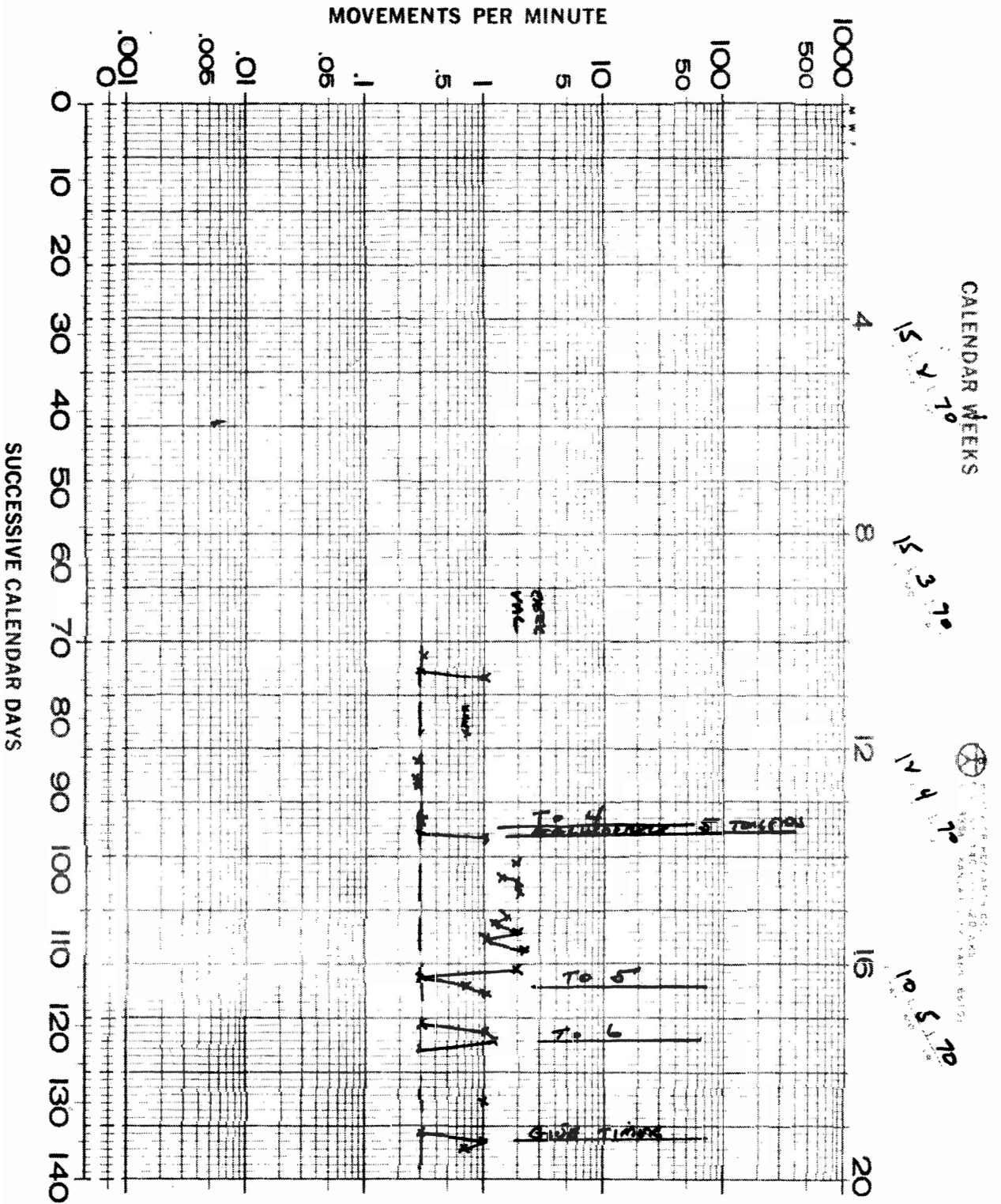
MARY
PROTEGE

7
AGE

LABEL

CORRECT
ADDITION
MOVEMENT

CHART 4



BRADEN
TRAINER

CRINER
ADVISER

STEVE & SHARON
MANAGER

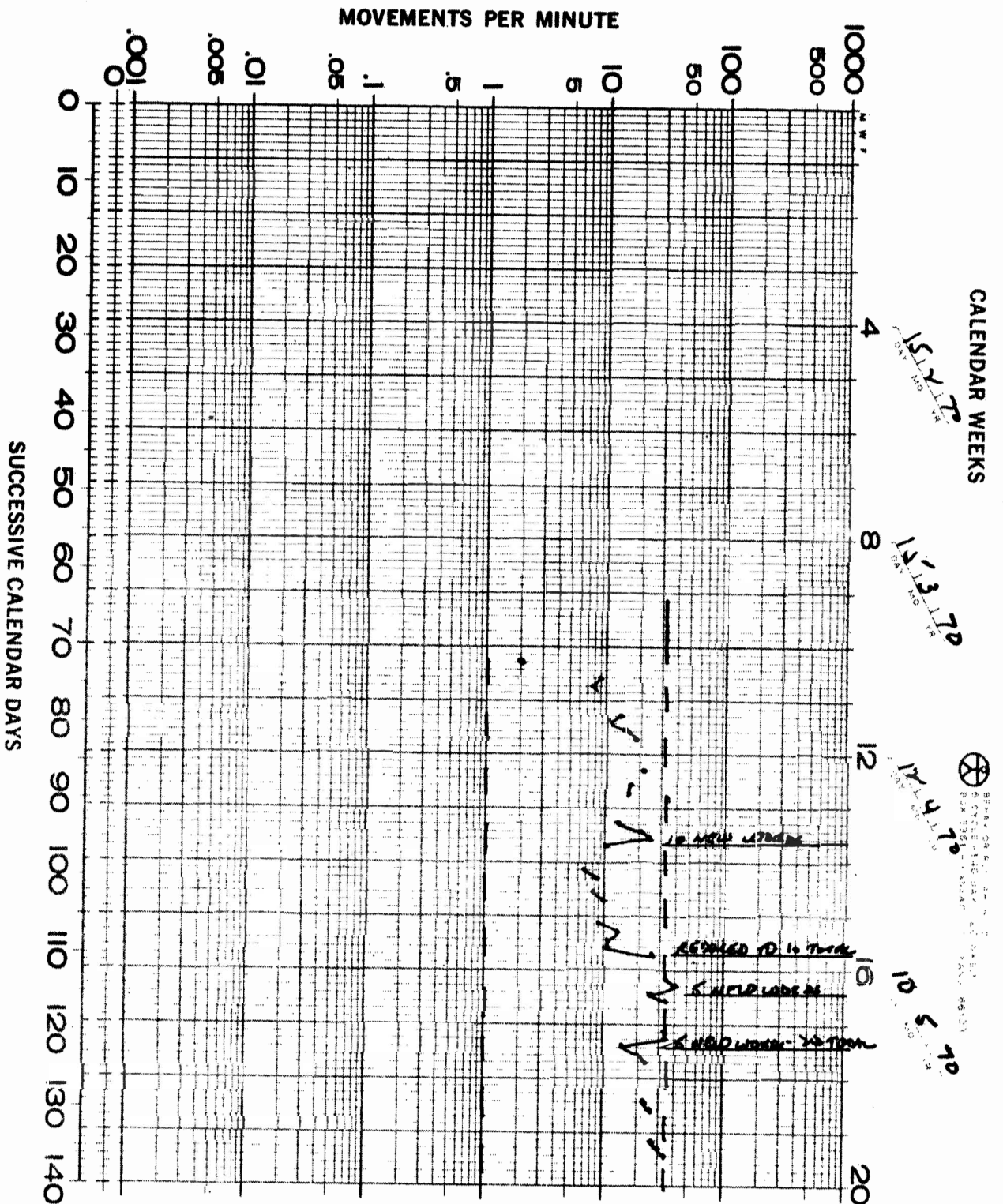
MARY
PROTEGE

7
AGE

LABEL

INCORRECT ADDITION
MOVEMENT

CHART 5



CALENDAR WEEKS

REDUCED TO 16 TOTAL
5 MOVEMENTS
4 MOVEMENTS

CORRECT
DOLL
MOVEMENT

Berman
TRAINER

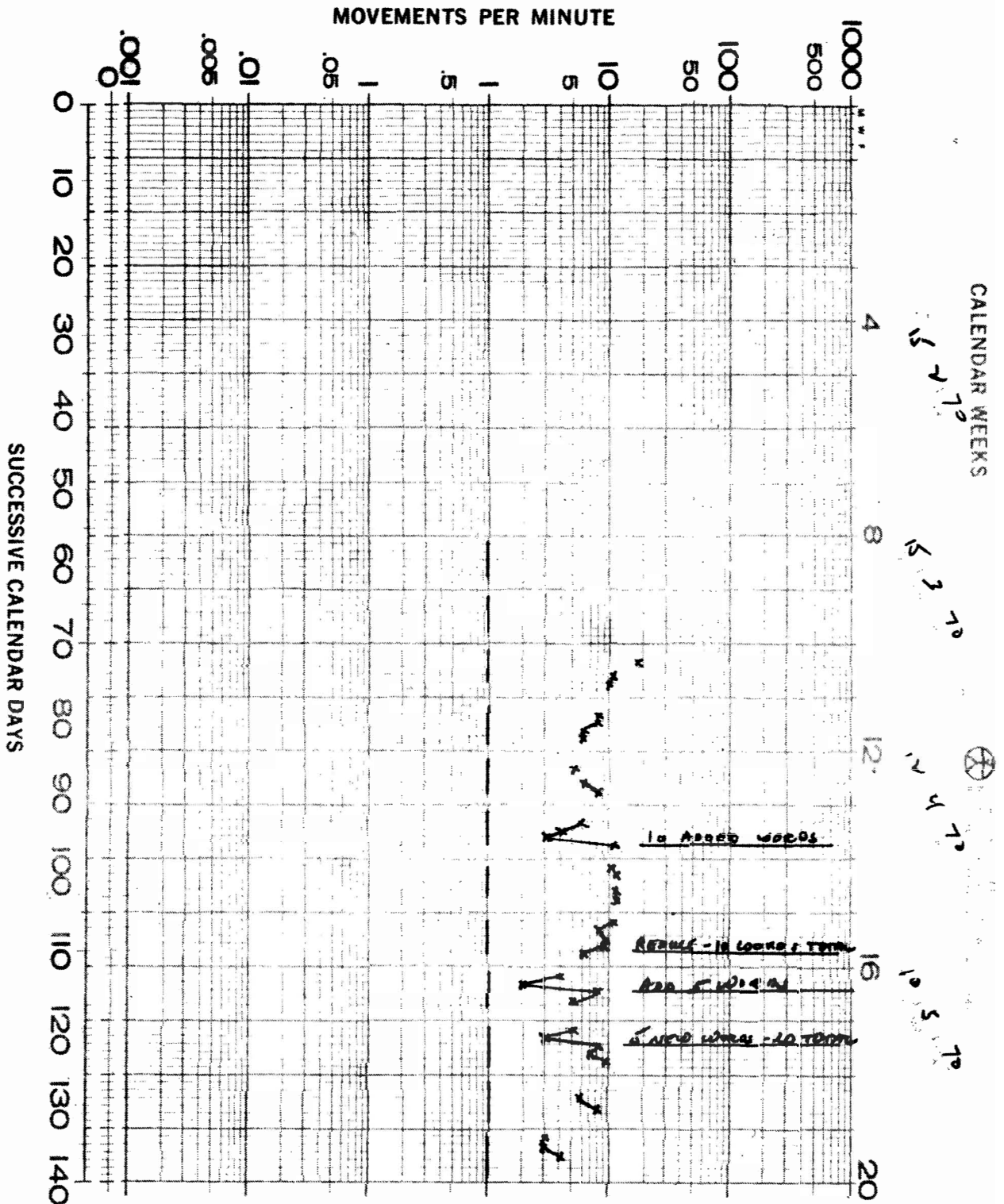
Chase
ADVISER

Sharon
MANAGER

MARY
PROTEGE

7
AGE LABEL

CHART 6



BRANDEN
TRAINER

CRINER
ADVISER

SHARON STEWART
MANAGER

MARV
PROTEGE

7
AGE

LABEL

MOVEMENT

not do her arithmetic problems and receive rewards for doing such problems if she was out of her seat. Planning projects in this way helps not only to build new skills but frequently helps to hold previously high-frequency negative behaviors at a very low rate. Hence, new learning.

DISCUSSION

An examination of the results just presented would seem to suggest the following:

1. Though there may well be identifiable behavioral differences between those children defined as severely emotionally disturbed and those children with minimal brain dysfunction, or neurologically based learning disabilities, these children are still more alike than different. Behavioral differences seem indicated by the following:

- In this program there was a preponderance of behavior deceleration projects for the learning-disabilities group as opposed to behavior acceleration projects for the balance of the project population. It is important to recognize that behavior deceleration projects focus primarily upon "acting out" types of behavior of either an aggressive or hyperactive nature. Behavior acceleration projects tended to focus upon increasing the rate of interaction behaviors and promoting socialized peer interaction. It will be recalled that no behavior acceleration projects were initiated on the group defined as having learning disabilities.

- A difference was noted in the number of projects that focused upon those academic areas that emphasized perceptual-motor responses, that is, writing and language. It will again be recalled that all writing projects and three of the five language projects were maintained on the children in the learning-disabilities group. It should be reemphasized that no formal differential diagnosis was utilized by the staff in determining those projects which should be initiated but rather that the projects were based on teacher evaluation of the specific behavioral needs, both academic and social, of the child in question. In other words, the projects were designed for individual children on the basis of their behaviors rather than on the basis of the category to which they had been assigned.

2. In all other areas the projects were essentially the same. Precision projects in reading, arithmetic, increasing attention span, and the reduction of aggressive behavior all showed highly similar results. In almost every case, regardless of the skill or behavior area, all the children in the project responded to precise behavioral management as had been expected. This suggestion of similarity between the two groups is not surprising when we consider that an evaluation of the available literature on both the emotionally disturbed child and the learning-disabled child suggest that they do, in fact, share many of the same "symptoms," and that it is only when a large number of these symptoms can be combined in a single child

that he is placed within a particular category. In this regard, it should be mentioned that even though, for the purposes of research, we have selected those five children who can reasonably fall within the definition of learning disabilities, all of the children in the project manifested one or more of these same symptoms. An example of this is found in the fact that eight of the projects were initiated to increase attention span of children in the program. Only two of these projects were initiated on children who were clearly defined as learning disabled. It should further be noted that no significant difference seemed to exist in the attention projects of the learning-disability group as compared to the total population.

3. We strongly feel that further attempts to delineate specific educational programs for particular categories of children is not only impractical but totally unnecessary. At the center we have utilized a system of individualized precision programming based on an analysis of specific behaviors. During our initial year of operation these methods proved equally successful with all of the children in the project, whatever their categorical placement. Precision teaching, the methodological approach upon which our program is based, requires the precise definition of specific behaviors of concern, the arrangement of these behaviors into an individual hierarchy of priorities for each child, the careful delineation of those antecedent and subsequent conditions that might effect a change in these behaviors, continued feedback with regard to the results of our efforts to change the behavior, and the modification of programs on the basis of changes in the child's behavior. We do not need categories to accomplish this purpose; all we need is children.

4. The program is changing as the children change. It is not intended to be a static or rigid attempt to fit the children into our mold, but rather to allow us to respond to changes in the children. As the children have gained behavioral controls, we have changed our program to take advantage of that improved control. In planning for the center's second year of operation, it has been not only possible but necessary to adapt the original program. The reinforcement system that was originally used stressed immediate and material reinforcement; it has been modified to include rewards that are increasingly symbolic and delayed, and the social reinforcement of adult approbation has increased in significance. As a result of the gains made by the children in behavior controls, it now becomes necessary to provide additional opportunities for social growth, together with the possibilities of enriching academic opportunities as the children are able to utilize more and different methods of instruction. For example, with the children's increased ability to function in activity groups, the center is now able to include in the second year's program an organized physical education unit. This functions as a further opportunity to expand functioning in groups as a way of increasing the pupils' social aptitudes, while at the same time it is geared to the development of basic motor skills. Another example of program adaptation is in the move from highly individualized instruc-

tion with a low level of stimulation to a curriculum that now includes programing which takes place in small groups with a lot of shouting and clapping. The children involved in such programs now have sufficient behavioral controls to "come down" from the excitement engendered by such group participation. Changes in the curriculum aspects of the program are a requisite of the precision teaching program, and these continuing changes will be assessed by individual projects designed to measure behavior change in the child. It is these projects that will tell us which of our curricular changes are appropriate.

We do not know what the long-range results of this project will be, and we can only rely on information that is currently available. In addition to the data cited above, we have currently returned two of the original twenty children to regular classrooms in the public school system. Current plans call for the return of four more of the original children if their existing rates of progress continue within the next few months. Beyond this, we can only speculate. Results obtained during the coming two years may help us further clarify and delineate the effectiveness of precision teaching with both severely emotionally disturbed and learning-disability children.

SUMMARY

In a program designed for severely emotionally disturbed children, one-fourth of the pupil population fitted the learning-disability classification, and all of the pupils manifested at least one or more of the characteristics that typify the learning-disabilities child. The methods utilized at the Therapeutic Education Center were effective with both groups. Many emotionally disturbed children appear to have learning disabilities, and many children with learning disabilities appear to evidence emotionally disturbed behaviors. Insofar as either category is effective in providing a base for educational programing, the question is raised as to whether or not these are but artificial separations. Precision teaching projects were effective in establishing desired behaviors of both an academic and social nature, in both groups of children.

NOTES

1. A. A. Strauss and L. Lehtinen, *Psychopathology and Education of the Brain-Injured Child*, Vol. 1 (New York, N.Y.: Grune and Stratton, 1947); A. A. Strauss and N. Kephart, *Psychopathology and Education of the Brain-Injured Child*, Vol. 2 (New York, N.Y.: Grune and Stratton, 1955); Eugene Schwab et al., "Child with Brain Dysfunction," *Journal of Learning Disabilities*, 2, No. 4 (April 1969), 182-188.
2. Schwab et al., "Child with Brain Dysfunction."
3. J. Jastak and S. Bijou, *Wide Range Achievement Tests* (New York, N.Y.: The Psychological Corporation, 1946-1965).