

BEHAVIOR DEPARTMENT

Annual Report

1 July 1968 - 30 June 1969

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During the past year, increasing involvement in the policies and plans of the school, greater participation in the training of residents as well as institutional personnel, and the broadening scope of our communications with other departments in the institution have given us increasing opportunities to feel out possible avenues for future development.

With several key supervisory and administrative positions now being held by well-trained professionals, there seems to be a growing unity of purpose in our efforts to develop a milieu that supports both habilitative and investigative efforts within the institution. Toward this end, Dr. Barrett agreed to serve on two very active committees, one of which appears to have a role in shaping the policies of the school.

One of Dr. Barrett's first contributions to the Professional Steering Committee was a statement, requested by the Assistant Superintendent, of the Aims of Fernald School. This statement described behavioral goals in operational terms, thereby laying the groundwork for future program evaluation and improvement based on changes in the behavior of residents. Within this context, opportunities for our department to make contributions appear to be increasing with what seems to be greater willingness on the part of the institution to admit need for more precise, more functional, and more effective training and evaluation procedures. Our emphasis continues to focus on the children's behavior as the only truly functional indicator of program effectiveness.

Concurrent with the changing administrative outlook is the legislative mandate to "unitize" the state institutions, and to formulate individualized programs geared to each resident. We see this reorganization as demanding new goals for the school and new functions for most of its personnel. Our initial recommendations, submitted to the chairman of the Committee on Unitization, are duplicated as an appendix to this report. Because demographic variables seem to be somewhat irrelevant to the content and procedures of specialized training programs, we have proposed that units be equipped, staffed, and programmed for reaching certain specified behavioral objectives, arranged along a continuum of increasingly comprehensive indices of demonstrated behavioral competence, and that individual residents be selected for these units on the basis of their current demonstrated behavioral competence, to be periodically re-evaluated as these residents progress under specialized training conditions. If behavioral objectives and operationally described training sequences are prescribed for each resident, the matter of evaluating personnel should become much easier, for it can be based on the progress of their charges. We have urged that unit personnel be trained to assist the residents of their unit not only in acquiring certain behaviors but in sustaining these behaviors as a basis for more advanced training, possibly in a different unit geared to more independent functioning.

We have learned that, no matter how many times we demonstrate new levels of competence in children heretofore thought to be custodial cases, whether or not the children will use and build upon those skills depends on the opportunities and support provided by the people and the facilities in their extra-laboratory environment. New ward personnel, who may have escaped formal indoctrination in custodial dogma, are often eager to apply new training procedures. But--in the absence of policies, equipment, and supplies to support their endeavors--progressive, open-minded newcomers are likely to be disheartened if not actually obstructed by the senior ward staff. Sabotage has occasionally reached openly destructive proportions.

Our program and other innovative programs within the institution--like the children themselves--need an environment that supports investigative and habilitative endeavors at the level of visible action in the daily operations of all the institution's departments. In our small-scale operation, we try to support and to nourish, whenever possible, any efforts which may contribute to the evolution of an institutional culture that will allow its residents to develop to the limits of their abilities, that will provide the behavioral as well as medical prostheses that they may require to achieve their full potential, and--no less important--that will grant its staff the training, the tools, and the incentive to meet the challenge of retarded behavior.

The following report outlines our efforts during the past year to contribute to the development of a resident-oriented, behavior-supportive Fernald School.

1.0 ADMINISTRATION

1.1 Support from grant and institutional sources

1.11 Two grants continue to be our major source of personnel funds and our only source of funds for equipment and technical supplies. Differences in the administration of the two grants have determined to a great extent the relative differences in the progress of work supported by them. Because the school is highly dependent on grant support for any innovative changes and for most of its better-trained professional staff, we believe that it may be informative to compare certain of the administrative features of our two grants.

1.112 Grant MH-14880 from the Applied Research Branch of NIMH to the Corporation of the Walter E. Fernald State School continues to be our most efficient source of funding. Since we do not have to arrange our purchases through the state or school system, we are able to place telephone orders directly to vendors, send confirming purchase orders, and acquire supplies and equipment quickly--sometimes within hours. We have experienced delays only in instances in which we have had to deal with suppliers who are obligated to give priority to defense contracts. Because we deal directly with vendors and effect rapid payment, we are able to obtain discounts not available through state channels. In addition, we are never forced to accept inferior substitutes for required items. Thus, we are able to make more

1.112 (continued)

efficient use of available equipment and supply budgets.

Our NIMH grant is also free of the personnel restrictions imposed on state agencies. This enables us to support part-time students, to obtain the services of highly skilled people on an hourly basis, and to get rapid repair of equipment not maintained by our technicians.

Although we must perform all grant-administrative work except for receiving government checks, writing checks, and making out yearly financial statements for NIMH, the greater flexibility of this system permits freedom to exercise the brand of professional judgment that enables us to run a remarkably "tight ship".

- 1.113 In contrast, Grant MH-MA-5, whose source is a federal grant-in-aid to the Massachusetts Department of Education, suffers from 1) all the political red tape typical of any "collaboration" between the Department of Education and the Department of Mental Health, 2) interminable delays caused by the circuitous routing of checks to the school and purchase orders issued from the school, 3) the Civil Service regulations on personnel, 4) obstacles within the school's business office with respect to grant administration, and 5) outspoken resistance to the entire domain of grant administration by the school officials whose duties presumably include the financial management of state grant funds.

As if this large stack of administrative cards against effective utilization of grant funds were not enough, the Department of Education has created other problems. Despite agreement among all published descriptions of the various activities falling within the mandate of Title I of P.L. 89-313, the Massachusetts granting officials have their own interpretations--which are so unclear to the school's liaison people that none of us knows at this point what is acceptable. Because negotiations and communications are not handled in writing or through the appropriate administrative channels (viz., through the Superintendent's office), project co-directors have had to spend more and more time in personal visits to the downtown office. These have occurred during some periods as often as twice a week, and in general at least twice a month. Both co-directors complain that they are so deluged with administrative demands from the Department of Education that they have little time to pursue the funded work. Throughout the last 18 months, officials of the state granting agency have directly undermined the authority and responsibility of persons appointed by the Superintendent to supervise the grant activities. This has taken the form of 1) direction to clerical staff to hold up invoices and not to inform the project co-directors or the Superintendent, and 2) advice to the co-directors that they are not accountable to the Department Head designated by the Superintendent to be responsible for grant activities.

Along with the aforementioned obstacles to our efforts to train children came the reality of four threatened fund stoppages, two of which resulted, we were told, from failure of the school's business office to request quarterly funds on time. For reasons

1.113 (continued)

unknown to us, equipment orders were not processed for over six months, and consultant time has not been remunerated for over 1½ years (since the end of January, 1968), despite clearance on legal aspects. This, in spite of the fact that large sums of money remain unobligated at the end of each fiscal year.

As we pointed out last year, the funding insecurity alone makes it impossible to attract personnel who are not only qualified but who will remain long enough to provide the continuity so necessary in the training of severely and profoundly retarded children. Among the staff paid from this grant, with the exception of the co-directors, there was a 100% turnover in one year. Much of the time that should have been spent in habilitating children had to be devoted to training the new personnel and deciphering the files set up by departed staff. There has been little cohesiveness, inadequate supervision, and low morale as teachers have tried to work without supplies or equipment in a classroom which does not even have adequate lighting.

Under the conditions, it is remarkable that, children have been trained at all, that programs have been written and tried and revised, and, indeed, that the project is progressing, albeit much more slowly than we would consider appropriate. The greatest progress has been made by those who have attempted to remain insulated from the fiscal uncertainties and administrative frustrations and have focused on the developing behavior of their pupils. We believe that if more staff were more concerned with training and less concerned with the politics of grant administration, the project would have moved much farther.

We have contrasted the administrative features of the two grants because we know from our experience with the NIMH grant to the Corporation that grant support can be smoothly handled, resulting in efficient use of funds, excellent staff morale, loyalty to the project, and clear leadership. We attribute the relative ease with which our NIMH funds are handled to the fact that there is minimal slippage (fewest possible middle-men) between the receiver of checks from Washington and the writer of checks on those funds. In the case of MH-14880, there are two people: Dr. Barrett and her loyal secretary!

1.12 Support from the institution

1.121 Corporation coverage of floor cleaning in absence of indirect cost allotment. As we indicated last year, we were not granted an indirect cost allotment for our 05 year because an accepted rate for the school had not been negotiated with the Department of Health, Education, and Welfare for 1967. We are most grateful that our once-a-month floor cleaning was paid for from Corporation funds. Janitorial services are not allowable as direct expenses on grants from the U. S. Public Health Service.

1.122 Personnel referrals from other Departments--especially Education and Training, Psychology, and Social Work--have been welcomed by us, and

1.122 (continued)

we have reciprocated when promising people have contacted us and we have had no openings. We hope we are correct in interpreting this as indicating 1) greater acceptance of our efforts to contribute to the Fernald community, 2) growing recognition of the opportunities that may exist for trained people in our program, and 3) increasing willingness among all of us to extend ourselves, mutually, in the service of a more general cause: that of bringing highly motivated and well-trained people to Fernald School.

- 1.123 Temporary loan of personnel and facilities from Fernald staff. By arrangement with Dr. Paul Touchette, we were loaned a School Department teacher who specializes in training children with severe behavior problems, and we have been allowed part-time use of a well-equipped classroom. We appreciate this assistance which enabled us to provide daily classroom training for three "difficult" Wheatley Hall children, all of whom made significant gains. We hope this arrangement will continue during the forthcoming year. On our part, we taught the teacher some rudiments of behavior recording, we lent her some counting devices, and we helped her apply some procedures of behavior modification. She provided us with written descriptions of her successful procedures so that other teachers might also use them.

The Director of Education and Training also loaned to our project a recreation therapist, who has begun extending the service functions of the laboratory to residents of various dormitories, including some from back wards and others who have been excluded from training because of severe management problems.

- 1.2 Our contribution of travel funds to bring a new staff member to Fernald. In keeping with the more cooperative atmosphere that seems to be developing, we located and brought to the school an individual with specialized doctoral training in applied behavior analysis. Because we believe that this individual can make substantial contributions to the school's evaluation, habilitation, and professional-training functions, we made every effort to put him in contact with appropriate Fernald staff. We are pleased that others found this young man impressive. We look forward to working with him during the coming years.

- 1.3 Training facilities have been expanded by partial renovation of a large room across the hall from the laboratory. Lighting is still woefully inadequate, storage space is lacking, cleanable flooring has yet to be installed, and one-way observation facilities are still incomplete. However, individual training cubicles, a small classroom area, and an office area are now in use and have alleviated congestion in the laboratory area. To facilitate communication, we installed an intercom station in the classroom.

During the four months of renovation, the teaching staff of the Title I project conducted their work in the laboratory area. To avoid interruption in the children's training, and to provide desk space for the training project staff, we shared our already overcrowded laboratory facilities. Delays in apparatus development and inconvenience to the laboratory staff seemed a small price to pay in order to permit the teaching staff to continue their explorations of new procedures for training severely and profoundly retarded children.

1.3 (continued)

Two other training areas (dark, damp basement rooms, described in last year's report) continue to function despite the substandard conditions. The area in Wheatley Hall was repaired by a group of volunteers. These volunteers have also been conducting training sessions with many of the Wheatley Hall children.

Two leaking School Department rooms, one in the schoolhouse next to the old gymnasium, continue to serve as the main sites of the programmed-instruction project. Several new Avidesk teaching consoles have been added to the larger training area.

1.4 Personnel1.41 Regular staff

1.411 In the laboratory, Mark Wisan, M.S., recently assumed the position of junior laboratory assistant, vacated earlier in the year by Natalie Simon. Madeline Callahan continues as secretary; Barbara Colby, B.A., as data analyst; Jill Romanoke as teacher; Judith Rosenberg, A.B., as editor; Tom Severens, B.A., as senior laboratory assistant; William Close as senior instrumentation engineer; John Hoover, B.A., as junior instrumentation engineer.

On loan to us this past year, through the courtesy of the Director of Education and Training, were Joanne McClary, recreation therapist, and Marcy Dishler, special education teacher (see section 1.123).

1.412 In the classroom, Delia Johnson, M.A., replaced Michael McCarthy as supervisor. William Baker replaced Karen Segalini as clerk-typist. Treacy Hickok, B.A., continued as speech therapist. Jane Gynn, B.A., Kay Plumb, B.A., and William Stern, M.A.T., replaced Darlene Cohen, Kathleen Shearer, Judy Daloz, and David Cohen as teachers.

1.413 The programmed-instruction project continues to be directed by John Davidson, M.A. Mandy Vernaglia, B.A., replaced Mary Greene as programming assistant.

1.414 In Wheatley Hall, Linda Jarvis, R.N., B.S., continues to guide habilitation programs.

1.42 Student staff on field placement during the past year were Debbie Sheehan and Douglas Coughlin, Northeastern University co-op students serving as ward teachers; Lorraine Peak, Antioch College co-op student serving as ward teacher; Stefanie Robak, Jean Prescott, and Heidi Dolgoff, Northeastern University co-op students serving as classroom teachers.

1.43 Under the supervision of Miss Hickok, 30 volunteers from Boston College provided Wheatley Hall residents with training in motor coordination and speech. Thirteen students from Sudbury High School cleaned and painted the basement training area in Wheatley Hall. The Sudbury teenagers and two other volunteers from the Sudbury Lutheran Church provided recreational and habilitative sessions for many of the Wheatley children in the area they refurbished (see section 3.4).

Students from a local high school conducted various activities for Wheatley Hall children, but their volunteer services had to be discontinued because of

1.43 (continued)

the group's failure to assume adequate responsibility for the projects they planned. This was our first unsuccessful experience with a volunteer group.

A resident of Waltham has been most generous in repairing clothing for Wheatley Hall children.

- 1.5 Beginning development of services for Fernald residents and staff. The loan of two additional staff members has made possible some initial attempts at developing a "field" for some of the services that our laboratory and its affiliated projects might offer (see sections 1.123 and 2.4).

Dr. Barrett's greater involvement at the administrative level of Fernald puts us in growing contact with a wide range of problems at nearly all levels of institutional operation. At present we do not have the personnel, equipment, or space to expand the scope of our NIMH-supported project, but we have begun to send out "feelers" that will be described in later sections. These embryonic efforts are giving us a clearer notion of future directions for our work.

- 1.6 Further development of laboratory facilities has been frustratingly slow because of unforeseen problems. Our instrumentation engineer, whom we had counted on for fulltime work, has returned to college and is therefore able to work for us only a few hours a week. For this reason we have had to depend on outside firms for equipment modifications. Because defense contracts are being given priority, we have been forced to accept abnormally long delivery times from equipment modifiers and suppliers. We did not receive the housing for our portable unit until the end of March! Our analytic projector came so late, that the company that was to modify it refused to honor their commitment to do the work. The company had changed from R & D work to production under defense contracts!

Because of the need for some permanent record of behavioral complexes which defy precise description, we have begun filming some of our children in action. Luckily one of our newer staff members is facile with photographic techniques. We have already used footage to demonstrate the dramatic differences in one boy's feeding behavior in the laboratory and on his ward. We believe our filming facilities will prove to be a valuable adjunct to our methods of recording more specific behaviors and they will also be useful as accelerating consequences for some of the children.

Despite delays, we proceeded as rapidly as possible on the design and solid-state logic of our portable unit for use in the dayroom at Wheatley Hall. The unit is now being placed in its housing, and the children's console is being built. The unit offers considerably more flexibility than any we have had previously. The findings that emerge from its use should clarify many of our questions about the functions of future laboratory devices.

We have increased the capability of existing laboratory facilities by making a wider variety of consequences available in Rooms 1 and 4. This is enabling us to examine a greater number of children in these rooms. We have also added a vocal channel to Room 4. With this added measurement device, we have begun to investigate the environmental specificity of screaming in a Wheatley Hall child.

A remote transducer, differentially activated by urine and feces, is now ready for child-testing. The device can perform a variety of operations, such as alerting personnel, signaling the child directly, or switching various functions of the apparatus which the child may be working on at the time of activation.

- 1.7 Office facilities have been stretched to accommodate additional desks and filing space for three Graduate Fellows who recently joined us. Some supplies and training equipment are now being stored in steel cabinets which we had to locate in the corridor waiting-area for lack of other convenient, safe storage.
- 1.8 Ward training facilities remain essentially as described in last year's report. The dayrooms are still badly overcrowded and poorly equipped. However, some training materials were obtained through volunteer contributions and some painting was done by volunteers and by the school. In June, following a meeting of Wheatley Hall parents, measurements were taken for screening to protect the lights in the dayrooms. Bids were awarded for tables for the dayrooms and these are scheduled to arrive at the end of August.
- Some Wheatley residents are still sleeping in infant cribs. However, we have been informed that ten regular-sized beds—considerably more suitable for nearly full-grown young people—were ordered for Wheatley Hall over a year ago and recently arrived on the grounds of Fernald.
- Last fall, a Department of Mental Health engineer and architect surveyed Wheatley Hall and drew up plans for improved bathroom facilities, including tub, shower, lavatory, and toilets in separate stalls. We eagerly await the implementation of these plans so that Wheatley residents will have opportunities to develop skills in bathing and toileting themselves.
- The engineer is presumably working on plans to remodel the antiquated Wheatley kitchen. In the meantime, the kitchen cabinets have been repainted.
- Windows in the treatment room and front office were replaced, but leaking persists and swelling occurs because of improper fit.
- 1.9 Signs of a more habilitatively directed administration are evident but have yet to reach the level at which ward staff are selected and trained for habilitative functions and are given the tools with which to perform them. However, as the unitization plan goes into its initial stages of implementation, these problems—problems which we have many times described as imposing obstacles to program development—are being highlighted to a more cohesively functioning administration. It is our hope that, when enough new senior personnel are confronted with these obstacles to their functioning, we will, together, find solutions that will permit us all to work more effectively.

2.0 BEHAVIOR EVALUATION

During the past year we added five new children to the laboratory group, while we have been exposing many of our "oldtimers" to a widening range of evaluative procedures.

We are continuing our studies of discrimination and differentiation and our efforts to remediate specific deficits. Four children who might have done well on the simultaneous discrimination and differentiation program (RC 65; RCFs 27, 28, 29) were purposely started on the single-plunger discrimination to see if they would subsequently show different patterns on the two-plunger apparatus from those shown by children who were not given a single-plunger history. Five of our severely and profoundly retarded children (RCs 64, 66; RCFs 22, 29, 30) were introduced to the program that allows simultaneous analysis of discrimination and differentiation.

In addition, we have begun to devote more time to four other tasks: 1) further analyzing the prevalence of productive and disrupting behaviors among severely and profoundly retarded children, 2) summarizing the effectiveness of different consequences, 3) expanding our methods for behavior evaluation into the classroom, and 4) providing behavior-evaluation services for other departments in the institution.

2.1 Productive and disrupting behaviors are being further analyzed, on a more functional basis.

Statistical analysis has supported our impression that residents of Lavers Hall and Wheatley Hall do not represent a behaviorally homogeneous group. The 55 children whom we studied were selected by the matron of each building as representative of her group, ranging from the "brighter" residents to those who posed severe behavior-management problems. All of these severely and profoundly retarded children were given repeated opportunities to work for a variety of automatically programmed consequences. Their median number of sessions was 278, which assured us that their behavior samples were reliable enough to override any effects of novelty, boredom, protracted acquisition, temporary illness, etc.

All of the Lavers children worked at rates above 100 responses per hour for at least one of the available consequences, whereas only 72% of the Wheatley children responded at high rates. Application of Fisher's Exact Probability Test to these data revealed a low probability that children from Lavers and Wheatley come from the same behaviorally defined population ($p < 0.02$). Persistent disrupting behavior was shown by 56% of the wheatley children, but only 10% of the Lavers children ($p = 0.002$). Of the Lavers children, 90% were productive and nondisrupting, and none was nonproductive and disrupting; only 36% of the wheatley children were productive and nondisrupting, and 19% were nonproductive and disrupting ($p = .02$).

We wondered if the differences could be related to some of the commonly examined demographic variables, since the children from Lavers were a little older than those from Wheatley, they had not been institutionalized quite as long, and they included only boys whereas Wheatley housed children of both sexes. Nevertheless, statistical analyses revealed no significant relationship between our data on the children and their age, length of time that they had been institutionalized, their age at admission, their sex, or their level of retardation as derived from their IQ or SQ scores.

2.1 (continued)

Our impressions concerning differences in staff orientation in the two buildings led us to examine other variables that might be associated with the differences in the children's behavior.

We examined modal staffing patterns during each shift at the time our laboratory data were being gathered. We included not only paid ward personnel but also adult working residents who were assigned attendant functions. The staff-to-child ratios in both buildings were remarkably similar during the night shift, but during the day and evening shifts, some very striking differences emerged. Wheatley's paid staff-to-child ratio was more than twice that of Lavers, and its working resident-staff-to-child ratio was almost five times that of Lavers. The evening shift through supper also showed substantial differences between the two buildings. Although Wheatley's paid staff-to-child ratio was nearly identical to that of Lavers, its working resident-staff-to-child ratio was over four times that of Lavers. By some standards, Wheatley would be considered the better staffed of the two buildings, yet the behavior of the children suggests that a high staff-to-child ratio does not insure more effective management.

Duties assigned to resident workers differed in the two buildings. Lavers workers performed primarily janitorial tasks such as floor-mopping, trash removal, and laundry-gathering. Most Wheatley workers spent their time caring for the children. They dressed the children, fed them, toileted them, and changed their diapers. During the day and evening shifts, the children were supervised in the dayrooms mainly by the resident workers, while regular employees spent the majority of their time in non-child-related activities. The function of resident workers in this capacity appeared to all of us to be mainly one of behavior suppression. The differing staff orientations of the two buildings were reflected in the types of duties each matron assigned to the working residents.

Although we have only begun to examine other variables that might be associated with the behavioral differences we have found, we believe, our findings raise some pertinent questions for all of us. The only useful answers will eventually be found in the behavior of the children, for their voice, although often inarticulate, is far more relevant than ours. It may even be that a plunger that produces powerful consequences as well as an objective behavioral record will provide our inarticulate children with the means to answer our questions--if only we can bear to listen!

2.2 Initial summary of consequence effectiveness

When we began intensive study of severely and profoundly retarded children we had to make available a variety of consequences that might accelerate and/or sustain behavior, because we quickly encountered children for whom a candy was a curiosity to be felt, smelled, mashed, or thrown--but not ingested. When we encountered children who did not work for candy we began to offer other consequences such as the opportunity to view colored slides or hear music.

The summary presented here is illustrative rather than comprehensive. We are reporting those consequences and their associated contingencies which were made available to the largest number of children. Each child was given the opportunity to work for each consequence, in session after session, until he reached and maintained what was clearly his most stable session-to-session rate. Some

2.2 (continued)

children showed remarkable stability in as few as four sessions, while others required over 100 sessions before we were confident that we had obtained reliable behavior samples.

2.21 Group results

A mixture of candies and pennies (random ratio of 6:1) sustains the highest median rates of all the consequences available on a fixed ratio of 10 (including colored slides, rock 'n roll, and candies only). The pennies can be exchanged for dimes to operate vending machines or can be used to purchase special events such as field trips. The only children for whom only candy is still programmed are those who do not distinguish edibles from inedibles. These children are probably more profoundly retarded; some of them may also be those who do not work for more "social" conditioned reinforcers. These possibilities will be further explored as our consequence analysis continues.

Some children also work for five-second episodes of music or pictures, available either once a minute on the average (1'VI) or after every tenth plunger operation (FR 10). The middle median rate is more than twice as high for five-second episodes of music on FR 10 than on 1'VI. For slides, the middle median rate was more than six times higher for five-second exposures on FR 10 than on 1'VI. While these median rate differences are consistent with what is expected under the two different contingencies, the upper limit of individual medians indicates that there are children who maintain high rates on a variable-interval schedule. On the fixed ratio schedule, the middle median rate for slides was almost 50% higher than the middle median rate for music.

Conjugately programmed consequences are also available. The child has to maintain a rate of 80 plunger operations per minute to maintain the video portion of commercial television while getting free audio, or the audio portion while getting free video, or the video image of himself on closed-circuit television. Conjugately programmed video with free audio ranks next to candies and pennies in sustaining behavior and is more than twice as powerful a behavior-sustaining consequence as audio with free video.

Our findings suggest that the visual world may be more functional for retarded children than the audio world. Although the child's image of himself on closed-circuit television has little behavior-sustaining power, it may be that the mirrorless environment of our institution has prevented the children's own images from acquiring reinforcing properties. Television is available on all wards during most of the day and evening. It is as much a part of the child's daily environment as the ward personnel who watch it. It would appear that a powerful method of generating and sustaining behavior is being overlooked or even misused! Our experiments have shown that when television is "free", the children stop doing whatever they previously had to do to obtain it. The "nonresponding" child returns to nonresponsiveness. The working child stops working. This is one of the ward personnels' favorite ways of keeping children "quiet"!

We also have some children who, when they cease to get anything for working, decrease their rate slowly or not at all. A middle median of 5.6 responses per minute with individual median rates as high as 87 responses per minute

indicates that some children who appear to be working for a programmed consequence may, in fact, be working for something we have not yet identified!

2.22 Individual and psychometric-subgroup rate patterns.

2.221 Rate patterns for different consequences

The practice of psychometric categorization persists despite the increased frequency of highly articulate complaints and the efforts of some investigators to develop more functional behavioral assessment procedures. Table 1 in our last report gave a distribution of our children at various levels of intelligence or adaptive behavior. Children categorized on the basis of SQ rather than IQ were those who were either considered "untestable" or "not worth testing" by the school psychometrists. All those in this group were children who, at that time, were not considered eligible for participation in the school's formal classrooms and programs.

In our earlier analyses of differentiation and discrimination deficits, we subdivided our total laboratory group on the basis of psychometric classification. We found extensive overlap between the group whose degree of retardation was characterized as borderline to moderate and the group characterized as severely to profoundly retarded. We are following the same type of analysis in our initial summary of consequence effectiveness.

It appears that the middle median rate of the severely and profoundly retarded children is somewhat higher than that of the less retarded children for candies and pennies and for colored slides, while the less retarded children's middle median rates exceed those of the more severely retarded children for the video portion of television, episodic presentation of music, the audio portion of television, and conjugately programmed music. However, the less retarded children seem to show a wider range of individual median rates for both the video and audio portions of television, whereas the more severely retarded group displays a wider range of rates for five-second episodes of music.

It is obvious that there is a degree of overlap between psychometric groups that makes it neither feasible nor functional to predict an individual child's differential rates for various consequences from his psychometric classification. We have shown that the same is true of differential rates in successive discrimination situations.

2.222 A further look at extinction

We generally program extinction (absence of a previously programmed consequence) for children who 1) maintain unusually high rates of responding for a programmed consequence that does not sustain high rates in most other children, 2) do not demonstrate differential rates in successive discrimination situations, 3) do not show differential rates for different consequences, or 4) are so active

2.222 (continued)

in the conditioning enclosure that plunger operation may be "locked" into the general activity pattern. From time to time we program extinction to see if we can answer questions about a child's disrupting behavior on the ward. When extinction is programmed for mildly and moderately retarded children, it is usually planned in advance of their summer absence so that we can look at spontaneous recovery following interruption from extinction. The duration of extinction periods is varied depending upon the child's behavior and the questions to be answered. We never program extinction sessions simply to see if we can get zero rates. Most often extinction sessions are terminated and the child's former program reinstated as soon as session-to-session rate reduction is clear.

It appears that the range of median rates is much wider for the severely to profoundly retarded children than for the mildly-to-moderately retarded children. Within the former group, the effects of withholding payoff are less predictable from child to child. Two children who have had extended periods of extinction repeatedly, and have maintained unusually high rates even when shifted to different cubicles, do show rapid differential rate reduction in successive discrimination situations when short extinction periods are alternated with periods in which consequences are available. We do not yet know what sustains their behavior in a cubicle when no consequences are programmed. One child who continually annoys the ward staff by pulling out the plug on the dayroom TV set, and who works at high rates for TV in the lab, showed rapid rate reduction during five sessions in which she could no longer obtain either the video or audio portions of the TV. The ward personnel's interpretation that she "does not like" TV is hardly borne out in the laboratory!

Because much "normal" behavior is determined by multiple factors and sustained by a variety of consequences, it may be that extinction is an artifact of our academic upbringing and hence not legitimate or useful to look at in the world of application. However, the state training school does not breed "normal" behavior. It leaves its children on extinction for long periods, broken, more often than not, by random delivery or availability of affection, food, physical care, solicitous volunteers, and a variety of other "goodies" that reverse the contingencies of the outside world and frequently generate and maintain behaviors that are eventually labelled "problems". The highly individualized reactions to programmed extinction that we have recorded in the laboratory may provide helpful clues to understanding some of the behavioral phenomena on the ward. Considering that some of our children's behavior is maintained by only a few "primary" reinforcers, rather than by an array of conditioned reinforcers, the study of extinction may be of greater importance than it would be in the noninstitutional, nonretarded world.

2.23 Individual consequence profiles

If we look at the determiners of rate range within a group—the children who deviate the most from the total group mid-median and/or the psychometric group mid-median, a potentially more functional picture seems to emerge. RCs 6, 34, 37, 38, 39, 47 and 48 all illustrate extremes. RC 38's peak median rates are for conjugately programmed music (55.7) and TV audio (33.7), while his lowest median rate is for TV video (3.1). This boy is an avid rock 'n roll fan. Each day he routinely asks for the Beatles, and he spontaneously sings their songs—articulately and in perfect tune.

2.23 (continued)

He complains incessantly if he cannot produce the audio portion of TV. His stereotyped rocking is often accompanied by his "broadcasting" a plausible weather report into a plastic facsimile of a microphone. When provided with music via earphones, he sits motionless, often noting correctly what instruments are being played. He is our "audio" boy--and severely retarded at that!

RC 39's profile shows a dramatic drop to a zero median rate for audio with free video. One of our teachers noted recently that if she permits him to watch her mouth while asking him to perform a task, he appears preoccupied with watching her. If she shields her mouth from view, he goes ahead and performs. If he can look, he doesn't listen in the training situation. We will attempt to answer the question of whether he listens if he cannot look.

RC 48 exemplifies children who work almost exclusively for candy.

Three microcephalic children were compared for behavioral similarities. There appear to be more profile differences between the two brothers in this trio than between one of the brothers (RC 34) and the unrelated boy with microcephaly (RC 6). The generally higher-rate brother (RC 34) is profoundly retarded, the lower-rate brother (RC 37) is severely retarded, and the unrelated boy (RC 6) is moderately retarded. Neither common diagnoses, the genetic relationship, nor the level of intelligence was predictive of individual consequence profiles.

Data from six Down's syndrome children were grouped according to their dormitory, Lavers or Wheatley. The profiles of these children from Wheatley are incomplete. While no remarkable differences in median-rate profiles are evident, pattern differences may emerge among children from these two buildings. When we have completed more profiles on Down's syndrome children we will determine whether the differences are related to the type of chromosomal anomaly present in each child.

Because of the extreme overlaps in all our data when grouped in terms of children's demographic and psychometric characteristics, we are evolving more functional categories based on measured behavior parameters. We have presented here some of the empirically determined reasons for doing so. It appears that classroom data will lend further support, and we are currently evolving behavior categories from classroom performance for correlational purposes.

2.3 Expanding behavior evaluation procedures into the classroom

One of the most persistent obstacles to establishing a mutually enhancing feedback loop between the laboratory and ongoing instruction is the disparity in their universes of discourse--their methods of describing and evaluating what they do. In the world of severely and profoundly retarded children, this problem is compounded by the absence of any standard instructional materials or procedures. Teaching is a do-it-yourself business where anything goes, as long as it works. The tragedy is that few people know what does and does not work and with whom. Whatever evaluation occurs is usually recorded in the form of a verbal statement--unitless and dimensionless. A teacher who has success with certain children may be unable to communicate her methods to help other teachers and children, because she has never been trained to describe what she does in terms that anyone else can follow.

2.3 (continued)

Good teaching is successful experimenting. It is the manipulation of the learning environment that produces the desired changes in the pupil's behavior. And that is also what is done in the laboratory. Laboratory methods are precise. They are replicable because they can be described in specific operational terms.

- 2.31 Methodologic tactics. Before the laboratory can test the generality and usefulness of its findings, it has a prerequisite mission: to facilitate communication and comparison through use of specifiable procedures and a common recording unit. Toward this end, we have stressed five methodologic imperatives: 1) Focus on countable behaviors; 2) Describe procedures in clear operational terms; 3) Record behavior systematically in terms of frequency over specified units of time (i.e., rate); 4) Plot data on a common ordinate for all children on all tasks; 5) Keep a central file, organized by child (each child's training history) and by procedure (across children).

We believe we have succeeded in training most of our teaching staff in the first three tactics, which seems to us to be a major step forward. Some of the teachers have had so much difficulty in comparing the effectiveness of their procedures with different children that they have begun using a common ordinate.

Because the basic laboratory datum is rate, the most direct comparisons can be made if extra-laboratory data are also in rate units. The range of rates recorded in training situations is usually well below that of free-operant laboratory data. A common ordinate, sufficient for all conceivable laboratory and training rate data, is found in six cycles of semi-logarithmic graph paper. A common abscissa, consisting of successive calendar days, provides uniformity of graphed data across pupils and teachers. We are adopting this convention, proposed by O. R. Lindsay, for use by the laboratory teaching staff.

2.32 Examples of a teacher's application of laboratory tactics2.321 Self-pacing and differential consequence in reversals of the letters d and b

One of our teachers has consistently and effectively used laboratory-developed strategies and tactics and laboratory data in designing and recording the effects of his instructional procedures. In one case a profoundly retarded mongoloid girl was able to identify letters, but reversal of d and b had not been eliminated by the common methods of drill. After approximately six months without further training or practice on recognition of lower-case letters, her error rate was .65/min. when the letters were successively displayed by the teacher. Since this girl often used the tokens she earned to "rent" some of the word cards used in other training sessions, the teacher decided to try self-presentation. He found that the girl was capable of presenting the letter cards (prearranged by the teacher) with only temporary initial loss in accuracy. She stabilized at an error rate of .33/min. Her reversal of d and b was the only problem that persisted. Rather than constructing a new set of letter cards to incorporate a fading procedure—a very time-consuming endeavor—the teacher used a procedure taken directly from the laboratory: successive presentation of only d and b, in random order, with an M & M candy following each correct identification of only b. In two sessions this simple procedure eliminated the girl's d-b reversal.

2.322 Direct comparison of two children's performance on a sequence to train them in table-setting.

In a custodial environment, one of the basic problems for the teacher is deciding what to teach. The Down's syndrome girl we referred to above can now recognize over 200 words, and she is able to read and comprehend short sentences. But outside the training situation, she has no opportunity to use her developing skills, because nothing is available for her to read.

She and another Down's syndrome child had been taught to identify the symbols for the numbers 1 to 10, to count out the number of tokens equal to the number of circles drawn on a card, and finally to count out the number of tokens indicated by the digit (one through six) written on a card. One of our teachers decided to incorporate these skills into some behavior chains that the children could use on the ward without any special materials. Table-setting was selected as a goal since it would be useful to the ward personnel and could be considered a constructive contribution by these children. Since both children had previously learned to count six objects, the teacher started with a stack of plates and required the children to count out some number of plates from 1 to 5 and place them in another stack. Their error rates indicated that neither child could apply the previously acquired counting skill to plates. Both showed the same problem: they did not stop at the number of plates requested.

From the earlier training, the teacher knew that both children's counting behavior could be controlled by number symbols. Accordingly, each plate was numbered with a card similar to that used previously. As a result, both children learned to stop at the requested number. But since plates are not numbered in the ward dining room, it was necessary to train these children further to perform with only the plates.

Cards number 1 and 2 were removed for one of the children, but his error rate showed that the teacher had expected too much. With only card number 1 removed, the child was able to count out the plates accurately. He continued to make no errors as number 2, number 3 and then all the numbers were removed. He was able to retrieve the requested number of plates from a table across the room. When place-mats with outlines of utensils were put on a round table and spoons were requested in addition to plates, the boy's progress continued. Thereafter his table-setting training took place in the ward dining room at a rectangular table where bowls were substituted for plates and six place-settings were required. After four sessions, his error rate was zero, and he was then able to set a rectangular table with bowls, and spoons--without any prosthetic aids to placement or counting.

The teacher began more cautiously with the girl than he did with the boy. He first removed the number 1 card, then the number 2 card. When cards numbered 1 through 4 were removed simultaneously the child's error rate told the teacher that he had gone too fast. The teacher backed up and removed only two numbers, then worked up to eliminating four and, finally, all six numbers. The girl was able

2.322 (continued)

to transfer her skill to paper circles, but, in contrast to the boy, her error rate rose when the plates were placed in a remote location. By the time the boy was setting tables without aids, the girl had mastered only the remote placement.

The teacher's graphs of each child's performance showed that he might have gone faster with the boy in the successive number-removal sequence. He might have introduced remote plates earlier with the girl. However, from his records the teacher has learned to depend on his pupil's behavior as the best indicator of his teaching effectiveness. It is noteworthy, also, that on the same day, when both children had upper respiratory infections and had been confined to their dormitory over the weekend, they both made fewer correct responses and their errors rose to the highest level since the early training phases. Classroom rates appear to be as sensitive as laboratory rates to the effects of illness.

Both children are now capable of helping to set tables in the dining room. Their teacher has learned how valuable a record of the child's behavior can be in making fine adjustments in his own behavior-- his teaching methods. His use of a common ordinate and abscissa for graphic evaluation enables him to compare his pupils' progress directly, with the same yardstick. With classroom rates and laboratory rates recorded in uniform units on uniform graphs, our relationship can be one of maximal mutual benefit.

2.323 Operationally specified training procedures enable untrained volunteers to teach specific skills. Over the past year we have had a speech therapist who screened the Wheatley Hall children on an articulation test and then set up a training program. She quickly realized that most of the children would have to be trained to make imitative responses before actual speech training would be possible. She designed a program that would begin by training children to imitate a teacher's motor movements and would ultimately lead to their being able to carry out a series of requests that would end with their production of speech sounds. Her sequence of training procedures and her recording forms were designed and described with such care and precision that 30 college student volunteers were able to follow them. The volunteer teachers were able to conduct systematic training of 16 children who would otherwise not have been trained because of the shortage of training personnel.

2.4 Services for other departments at Fernald

In the last year we have had many requests for a variety of services, both to residents and to other personnel at Fernald. Because we are few in number, we cannot fulfill all the requests we receive, but we try to be as helpful as possible. Two of our staff members have acted as roving scouts, learning from various levels of staff the types of problems with which they need assistance.

2.41 Back-ward training. Ward personnel from some of the "back ward" buildings have identified some of their more competent residents who spend their days sitting idly in barren wards. As a result, a number of training and recreational services have been offered, some of which are described here.

- 2.412 One of our staff has become interested in an adult resident of North Building. She is capitalizing on his free form drawing ability to increase his visual-motor coordination in the use of pencils and crayons, she is training him to tell time so he can be ready for his appointments with her, and she is putting his pipe-smoking to use by requiring that he purchase time for it with tokens earned in the training situation. We are currently planning a diet program for this young man, because he is dangerously overweight.
- 2.413 In collaboration with one of Fernald's more dedicated occupational therapists, and with the help of our recreation therapist from the Department of Education and Training, we have made space and apparatus available to an adult resident with cerebral palsy from Wallace Building. This resident is being given daily opportunity to utilize his verbal and writing skills—he is using an electric typewriter to write his autobiography. He records his starting and stopping time, and his typewritten pages provide an easily graphed record of his progress. He complained recently that he was not pleased with his low productivity so we are planning a program to help this very capable man produce at a higher rate.
- 2.42 Recording and graphing assistance and loan of recording devices have been requested by a number of people interested in obtaining a clearer picture of the effects of their training efforts. A School Department teacher sought and was given help in specifying various behaviors she wished to accelerate or decelerate. Multiple counters and single wristcounters have been loaned to those who have expressed interest in using them. As the number of requests grows, we have evidence of growing readiness among institution personnel to try systematic recording procedures.
- 2.43 Evaluation of a habilitative program for one of our multiply handicapped laboratory participants has been facilitated by our new filming equipment as well as our new methods of graphing. Because we had been following this young man's behavioral progressions and regressions since 1964, we were able to provide behavior records illustrating the effects of his immediate environment on his apparent ability to walk and to feed, dress, and toilet himself. When it became clear that this "disability" increased when he was cared for by ward personnel and that it decreased dramatically and rapidly in the laboratory, where self-help and locomotor competence were required, the new Rehabilitation Unit selected him as one of their first admissions. Progress in self-feeding, visual-motor coordination and spontaneous speech is being charted on a number of graphs which should reveal the effectiveness of the habilitative program. (It might also be noted that the graphic record of this boy's progress revealed to his teacher the suppressive effects of her own personal problems on his performance!)
- 2.44 Testing the durability and applicability of a self-help training kit, designed by Fernald's head of Auxiliary Services, was accomplished by use of our laboratory recording forms. We determined the design and fabrication weaknesses of the prototype kit and will soon evaluate a modified kit presumed to be more suitable for training multiply handicapped adult residents.
- 2.45 Assistance in apparatus design, construction and repair has been sought by and provided for the Psychology Department and members of the teaching staff. It appears that there is a growing interest in trying out some twentieth-century aids to learning. We are hopeful that, eventually, Fernald will offer the services of electronics technicians.

2.46 Information retrieval service and access to reprint files have been requested by growing numbers of students and teachers. While our small operation could never begin to supply the needs of these many people at Fernald, it is mentioned here as one of the many other services that has been sought. It appears that, despite the many fine libraries in the Boston area, there is need for a more up-to-date and comprehensive library within the institution.

3.0 HABILITATION OF FERNALD RESIDENTS

Habilitative efforts over the past year have become more comprehensive in content and in numbers and types of residents served. Loans of personnel from Fernald have helped a great deal. The fact that we now have our own vehicle has enabled our staff to offer help in buildings remote from the laboratory. Our primary focus continues to be the severely and profoundly retarded children of Wheatley Hall, but we have extended our habilitative services to residents of four other buildings. At present, these services are very limited, mainly because of personnel shortage, inadequate in-service training programs, and a lack of institution facilities and equipment with which to conduct comprehensive habilitative programs. However, we believe that our efforts represent the kernel of what could be developed further, with greater institutional involvement.

3.1 Wheatley Hall ward training efforts, directed by Miss Jarvis, received considerable attention last summer and fall from administrative personnel including the new Assistant Superintendent, the Assistant Director of Nursing, and a Nursing Supervisor. By attending several Wheatley staff meetings and offering useful and encouraging suggestions, they showed the staff that they were in favor of whatever training could be accomplished. In turn, they became more familiar with our problems in trying to conduct habilitative programs in a setting designed for custodial care. This exposure has underscored a variety of policy and staff orientation changes that are necessary if the children at Fernald are to be offered maximal opportunity for behavior development.

Miss Jarvis reports that, despite persistent administrative problems, custodially-oriented institution ward personnel, and grossly inadequate training facilities, there is evidence of some progress in Wheatley Hall. In general the children are better behaved. They follow directions more readily. Disrupting behavior in the dayrooms seems to have abated somewhat. Many of the children are being allowed more freedom to move around the building. More is being asked of many of them. Some of the children help with such tasks as folding linens, taking laundry to the basement, hanging clothes, making beds, sweeping floors, carrying messages, washing tables, and helping with the bathing of other children. When tasks are completed satisfactorily, children may be given tokens which can be used to buy candy, cookies, and other goodies at the "nickel store," open for business each evening. The "store" was established by some of the attendant personnel and appears to be working effectively as an informal token program with about 17 of the children. The dining room is one of the quietest areas in the dormitory now. There is little incidence of food throwing or stealing. Many of the children ask for bread and dessert instead of just sitting until someone brings the food to them. When disrupting behavior does occur, the offender is sent out of the room.

Some of the children have learned to bathe themselves in the bathroom sinks. In the absence of a single bathtub or shower, a play tub was put into use in the boys' ward. Of the ten boys in the self-bathing program, six now require almost no supervision. Two more boys were recently added to this training program. Similar progress in self-bathing is being made on the girls' ward, where 15 residents are using the "shower"—a hose suspended from a curtain-pull over the sink. The fact that the self-bathing was initiated by the attendant staff is indeed a sign of progress!

3.1 (continued)

Efforts to generate and sustain specific skills in individual children may be illustrated by the following example. One Wheatley resident ate only food which he could pick up with his fingers--except for sweet desserts such as Jell-O, which he ate with a spoon. It was decided that the boy would have to use his spoon for all of his breakfast and lunch. Any food delivered to his mouth by means other than the spoon was removed. A loud "No" preceded removal of the food, and the offending hand was momentarily restrained. The distance between the teacher and the child was gradually increased to about six feet. By the end of the training sessions a stern "No" was sufficient to prevent the child from putting food into his mouth with his hands. A total of 110 training sessions were conducted over a period of about 3½ months. The child, who initially used his fingers as many as 15 times per meal, decreased the use of his fingers to less than once every two meals. His mother is particularly pleased by his progress in spoon-feeding. She claims that she could never have accomplished this feat herself!

Our classroom teachers have become more consistently active in assisting those members of the ward staff who seek help in training the children. Through the combined efforts of our speech therapist and one of our Northeastern co-op students, some ward personnel were taught the importance of requiring that children indicate their needs verbally. Individual and classroom training in verbal skills (word imitation, word identification, word-object matching, etc.) stresses the names of objects in the children's environment. If the children do not have to use these words, there is little point in teaching them. One effort to encourage verbal behavior, especially word recognition, took the form of printed labels taped to a variety of objects that the children used each day in the ward. The personnel were encouraged to have the children name the labelled objects in the course of their use. In the case of unlabelled objects (e.g., foods the child might want), it was suggested that the ward personnel try to get the child to imitate their saying the word before giving the object to him.

Other areas of assistance have included a breakdown of the behavior components involved in handwashing, toothbrushing, and dressing. These step-by-step outlines of complex behaviors should make it easier for ward personnel to train the children. The same breakdowns are being used by the teachers to evaluate, periodically, the progress of individual children who are being trained by ward personnel.

Each attendant was given a questionnaire asking her to evaluate each child's current competence in a variety of self-help skills and to indicate what she thought a child ought to be taught. The preliminary results substantiate the findings of an earlier ranking of a few children on "sociability" and "learning potential" by ward, classroom, and laboratory personnel. The older ward personnel ranked the children they consider the most "sociable" as those with the greatest learning potential. The result is that the children who are most reinforcing to the older ward personnel are overrated in terms of behavioral competence, while those who are not "sociable"--the loners--are underrated. The younger ward personnel, the classroom staff, and the laboratory staff did not view sociability as an indicator of learning potential! These findings point up the need for objective behavioral measures that will not exclude the brighter children who sit quietly in the corners.

3.2 Small-group and individual training has been expanded considerably since last year. More children are participating in a greater variety of programs as a result of supervised use of student volunteers, our good fortune in having a

3.2 (continued)

speech therapist, the availability of a recreation therapist, and an additional teacher and classroom. To supplement the usual daytime training sessions, additional sessions are conducted in the early evening after supper—which means that more children spend a greater portion of their waking hours outside the crowded ward environment. Use of the gym has provided opportunity to train these very awkward children in body coordination.

Sections 2.3 and 2.4 gave examples of some new habilitative programs which are making use of laboratory-derived methods and findings. The academic programs mentioned last year have been further developed to be applicable to more children. Programs include identification and use of number symbols, color-matching and color-naming, object identification, word recognition, generalization of word recognition to various sizes and styles of printing, reading and comprehension of sentences, telling time, writing, and a variety of imitative behaviors. As new training sequences are developed and old ones modified, there is increasing emphasis on relevance to the children's institutional lives.

Some of these training programs are conducted by more than one teacher and in more than one location (e.g., Wheatley basement and laboratory classroom) to assure generality of a child's performance accuracy. It has often been a child's "inability" to perform in more than one setting with more than one teacher that has caused School Department personnel to consider him ineligible for formal school programs.

During the past year there has been greater emphasis on providing regularly scheduled training opportunities for a much larger number of children—especially those who have usually been excluded because of their seeming (but undemonstrated) low potential and/or their lack of personal appeal to personnel. As mentioned earlier, three of our most difficult children have had daily classes with a School Department teacher whose procedures for training them in coloring, matching, writing, and reading have been written up in sufficient detail to be followed by other teachers. Six other children, previously excluded from training are beginning to be taught by another teacher to follow simple requests; he is exposing them to new experiences, outside their ward, that may eventually be used to accelerate and maintain other school "readiness" behaviors.

Two of the teaching staff have begun participating in the programmed self-instruction project affiliated with our total program. A substantial sequence of frames has been devised to train severely retarded children to discriminate, first, photographs of themselves from those of others and, then, through picture-name combinations, to discriminate their own written names from those of other children. One of our teachers has undertaken the development of a program to teach children to observe and search a number of available stimuli and to discriminate similar objects irrespective of their shape, size, or orientation.

In these training endeavors, teachers are keeping systematic, quantitative records of pupils' progress. The records enable us to group children with respect to their progress in specific training situations. We have begun devising ways of graphically comparing children's performances in laboratory and non-laboratory situations in an effort to locate behavioral parameters that might have predictive and prescriptive function. Laboratory-defined behavior groups are being formed as our summary analyses proceed. We plan to utilize behavior recorded in the classroom in our attempts to further delineate behaviorally-defined training groups.

3.3 School placement of four children. This is the second year that one of the Wheatley Hall children attended a public school class for trainable children in his nearby home town. He attended classes five days a week during the school year. His transportation was arranged by the public school.

Three other children have been accepted into Formal School Department classes at Fernald. All three, along with many others, are more than capable of attending public school classes, if only their families were interested enough to arrange it. Public school officials from some of their home towns have observed these children in action in the classroom, and they concur heartily with our evaluation.

3.4 Successful development of two volunteer programs has been a high point of the year. Our speech therapist planned and directed programs executed by volunteers--a real achievement that demonstrates some of the ingredients of success.

3.41 The pre-speech training program was carried out primarily by 30 Boston College students during two evening sessions per week with 18 Wheatley Hall children. This program was noted in section 2.3. It consists of 36 steps which train the child to imitate the vocalizations of a model. Twelve children have completed the program and are now ready for speech training. It is our hope that this program will be continued during the forthcoming year.

3.42 Training of severely and profoundly retarded children in visual-motor coordination, use of crayons, and use of various educational toys. Under the supervision of our speech therapist, 12 students at a suburban high school came weekly to carry out a program designed to teach some of the Wheatley Hall children to use pegboards, to string beads, to hold crayons, and to copy lines drawn in various directions by the volunteers. As with the pre-speech imitation program, all procedures were carefully specified, in steps that were readily followed by the volunteers. The volunteers were able to record the children's progress in ways that could be quantified, and they, as teachers, could be pleased by their recorded evidence of the children's progress.

These students ran raffles at their high school to raise money to buy educational toys which they then used to train the children. They also raised funds for paint and, themselves, redecorated the dark basement area that they used for a classroom. They have asked to continue with this program next year. Because of the clear supervision, the definite goals, and the systematic scheduling of sessions, these high school students feel that they have been able to accomplish more than in any other volunteer program they have participated in.

3.5 Extending our services to adult back-ward residents. Because we have seen so many skills emerge in forgotten children, hoarded in the custodial corners of the institution, we believe that there may be even more advanced skills among some of the adult residents who have been ineligible for training since childhood. As we mentioned in section 2.4, some of our staff members have begun to develop opportunities for promising adult patients who are destined to spend their lives at Fernald. A basic problem is the great lack of opportunity to demonstrate, develop, and put to constructive use whatever skills they have.

We believe that all residents deserve equivalent opportunities to develop and to use whatever behavior skills they are capable of. The label, the age, the behavioral level of ward-mates should not limit an individual resident's

3.5 (continued)

opportunity to learn. Our roving scouts are attempting to provide training, directly or indirectly, by making these more capable but long forgotten people known to those who have training facilities and wish to make them available.

3.6 Consultation services have been sought for help in managing severe behavior problems, in providing evaluation of children, and in designing training sequences for individual children. These requests have come from institution physicians, department heads, teachers, attendants, and occupational and physical therapists. We are not equipped to meet all their needs, and neither is the rest of Fernald. However, the fact that they are seeking assistance is, to us, a most welcome and long overdue sign of progress.

3.7 Vocational habilitation of young adult residents preparing for work placement in the community has progressed more rapidly in the past year.

The two trainees who were with us the longest have graduated to a Sheltered Workshop and are making good progress.

In the past year, four new trainees have worked with us, one of whom joined us just a few weeks ago. They supervise laboratory children, they do housekeeping and janitorial tasks, they assist our staff members by keeping the candy-penny-token magazines full, and they walk the children to and from the laboratory. Two of the young ladies progressed so well that one now works in a nearby factory while living at Fernald, and the other attends a rehabilitation center while living in a foster home.

One of our new trainees is a young man who had been participating in our studies for several years. He was a quiet, compliant person, who was kept in a backward building where he received no training. He was eventually transferred to the Farm Colony, but because he was participating in our studies, the Assistant Superintendent arranged for him to be brought back to Fernald and to work with us. He is now in the work-training program because his progress in his work has been so rapid. Not only is he learning all the usual duties of his predecessors, but he is acquiring skill in self-grooming, improving his posture, and developing initiative. One of our staff members is teaching him multiplication. We have all seen a great change in this young man during his six months with us. He now initiates appropriate conversation, asks relevant questions, and appears to be pleased with his new status and progress. He is one of the forgotten residents whom we hope will serve as an example of what can be accomplished if contingencies are consistently applied, if responsibility is given and rewarded, and if more normal behavior is expected. Our checklist of duties, carrying points exchanged for money on a weekly basis, gives our trainees something beyond what is offered by the regular stipend program, where pay is contingent only on presence at the job site.

4.0 TRAINING

During

4.1 Institution personnel. [^] the past year we have tried to provide informal training for as many as possible of those who have sought our help. Even though we cannot meet the needs of all referrals and all referring personnel, we have attempted at least to describe to them what could be done given the appropriate personnel and facilities. We have been encouraging institution staff members to pay more attention to the consequences a child's behavior produces from the ward environment. Some ward personnel seem to be developing greater awareness of the ways in which children manipulate their environment—ways which include behaviors which the ward personnel wish to get rid of.

4.11 In-Service Nursing Education. Although Dr. Barrett gives occasional lectures as part of the course for attendants run by the In-Service Nursing Education Program, it seems clear that this program is much too remote from daily problems to be an effective approach to training. We believe that many of the problems of in-service education will be solved when Fernald provides a truly functional behavior management and/or prescriptive training service. Prescriber and manager will then learn to continually revise their procedures as dictated by the measured progress of their charges. Attendance at lectures will be replaced by attention to behavior!

4.12 Wheatley Hall in-service training of an informal sort consists primarily of providing supplies, suggestions, time, and space for a few of the co-op student attendants to train children. Some have begun keeping records of children's progress which are reviewed by Miss Jarvis.

For six months Dr. Barrett and several laboratory and classroom staff members attended regular Wheatley meetings with ward personnel. Meetings were encouraged by the building's consulting physician when ward personnel complained so frequently about one child's destructive behavior that she was faced with prescribing either continuous restraint or heavy medication. She thought both unwise if there were other ways of handling the problem. We suggested that ward personnel record the frequency of the boy's destructive acts and use a carefully specified time-out procedure. We assured the attendant staff that this boy's laboratory records showed that he was capable of discriminating contingencies and reacting appropriately to varying consequences of his behavior. The boy's teacher pointed out that he did not perform destructive acts in the classroom.

Despite specific approval by the administration and reports from other buildings that time-out procedures worked well, the Wheatley Hall staff did not use the time-out procedure consistently, they did not record the boy's behavior reliably, and some personnel voiced open opposition on moral grounds. We noted that this opposition came from ward staff who apply noncontingent and prolonged physical restraint to children whose behavior may be destructive.

4.2 University students

4.21 Undergraduate special-education students from Northeastern University continue to supplement our classroom staff. These students, on cooperative work assignment, have been taught rudimentary principles and procedures of

4.21 (continued)

behavior modification, including methods of recording the progress of their pupils. They consider our setting a good one for training, and all have returned for successive co-op periods over a number of years. Their contribution to our habilitative endeavors continues to be outstanding.

4.22 One graduate student in physical therapy at Sargent School, Boston University, fulfilled the requirements of a Research Practicum by participating in our program. She received supervised experience in administering a procedure to evaluate children's ability to generalize from one dimension of a stimulus to another.

4.23 Three graduate fellows are now receiving training in our laboratory. James E. McCormack, Jr., B.Ed., a former co-op student and now a graduate student in special education at Northeastern University, is developing his skills in precision teaching and management of severely and profoundly retarded children. We took particular pride in Mr. McCormack's recent receipt of an award for outstanding academic accomplishment at Northeastern's School of Education. His continuing achievements with our retarded children have been equally impressive. His ability to design and refine precise, prescriptive, useful training sequences is illustrated by the progress of his pupils (see section 2.3). Peter A. Wish, M.Ed., a graduate student in educational psychology at Boston College, has begun an experimental analysis of stereotyped rocking. W. Alan Bodnar, A.B., a graduate student in clinical psychology at Boston University, is learning to design procedures for teaching specific skills to some of our less severely retarded children.

4.24 We regret that a request for postdoctoral training had to be turned down for lack of funds to support a trainee at this level.

5.0 COMMUNICATION

Dr. Barrett's active participation in the Professional Steering Committee and the Utilization Committee is providing new channels of communication within the institution. Via these avenues of communication, we have become increasingly involved in the plans of Fernald School and have found new opportunities to extend our laboratory work to the training of other institution personnel and institution residents. Committee participation was described more fully in section 1.0.

5.1 New publications:

5.11 Behavioral individuality in four cultural-familially retarded brothers. Behaviour Research and Therapy, 1969, 7, 79-91.

5.12 Behavior modification in the home: Parents adapt laboratory-developed tactics to bowel-train a 5½-year-old. Psychotherapy: Theory, Research and Practice, 1969 (in press).

5.13 A behavior evaluation program for retarded children. Progress report to National Institute of Mental Health for period 1 April 1968 - 30 June 1969. Behavior Research Department, Walter E. Fernald State School, July 1969.

5.2 Distribution of articles: Since 1 July 1968, we have filled 153 requests for reprints and descriptions of our laboratory work, and we have distributed a total of 270 articles and reports.

An informal report describing some of the activities under Title I support was prepared by Miss Jarvis and Mr. Davidson. Copies were made available to Fernald staff who might be interested in some of the current Title I projects.

5.3 Presentations to professional groups:

5.31 Barrett, B. H. What price behavior? In symposium on New Approaches to Assessment, American Association on Mental Deficiency (Northeast Region), Kiamesha Lake, New York, October 1968.

5.32 Barrett, B. H. Analysis and modification of retarded behavior. Human Behavior Modification course, sponsored by Massachusetts Psychological Association, Boston, October 1968.

5.33 Jarvis, L. The Wheatley Hall program. In-Service Education, Wrentham State School, Wrentham, Mass., February 1969.

5.34 Barrett, B. H. Behavior analysis for the educational counselor. Graduate Seminar in Educational Counseling, Boston University School of Education, April 1969.

5.35 Barrett, B. H. Prevalence of disrupting and productive behavior in children from different dormitories. American Academy on Mental Retardation, San Francisco, May 1969.

5.4 Presentations at Walter E. Fernald State School:

5.41 Dr. Barrett gave two lectures on operant conditioning, as part of the Basic Program for Attendants conducted by In-Service Education.

5.42 Miss Jarvis discussed the Wheatley Hall program at five sessions of the Mental Retardation Nursing Institute sponsored by In-Service Education and CERC.

5.43 Several movies and film strips on management of retarded behavior have been presented to Wheatley Hall personnel.

5.5 Information-seeking visits to other facilities: Dr. Barrett visited the Behavior Modification Ward directed by Dr. Thomas Ball at Pacific State Hospital, Pomona, California; the Reinforcement Therapy Program directed by Dr. Halmuth Schaefer at Patton State Hospital, Patton, California; and Dr. Martha Bernal's laboratory for physiological studies of autistic children at the Neuropsychiatric Institute of the University of California at Los Angeles.

5.6 Attendance at professional and scientific meetings:

- 5.61 Department members attended the annual conventions of the American Association on Mental Deficiency, the Northeast Region of the American Association on Mental Deficiency, the Eastern Psychological Association, and the American Academy on Mental Retardation.
- 5.62 Miss Jarvis attended a workshop in Behavior Modification at Belchertown State Hospital, January 1969. Mr. McCormack and Mr. Wish attended the Precision Teaching Workshop for Managers at the University of Kansas, June 1969.
- 5.63 Department members have also attended professional lectures given at Fernald School and other institutions in the Boston area.

5.7 Visitors:

- 5.71 Since 1 July 1968 there have been 274 visitors to the laboratory, including 167 professionals. Most of the other visitors were university students.
- 5.72 Tours of Wheatley Hall were given to 81 visitors, including 25 professionals and 14 students.

- 5.8 Program-supported consultation at Fernald School: Dr. Ogden R. Lindsley of the University of Kansas and Dr. Jay S. Birnbrauer of the University of North Carolina discussed laboratory and classroom programs with Dr. Barrett and department staff.

5.9 Special appointments:

- 5.91 Dr. Barrett was appointed an advisory editor of the Journal of Applied Behavior Analysis.
- 5.92 Dr. Barrett was elected Vice President of the American Academy on Mental Retardation for the forthcoming year.
- 5.10 Two parent meetings were held this spring in Wheatley Hall. The parents who were present began sharing problems, fears, and areas of ignorance concerning their children, the roles they might play in assisting the training staff to help their children, and ways in which the ward personnel might be more helpful to them. Most of these parents had never met each other before, and most were not active in the Fernald Parents' League. Therefore we considered their attendance and interest to be a step toward future League involvement and, we hope, greater personal security by experiencing the support of other parents as well as of the training staff.

At the first meeting the parents organized themselves and appointed representatives to speak with the administration. They requested that a list of needs for Wheatley Hall be submitted to them for presentation to the administration.

The second meeting was attended by the League President, a member of the Fernald School Board of Trustees, and two representatives from the MARC Board. The Wheatley parents were further assured of support, they were encouraged to work

5.10 (continued)

in cooperation with the League, and they were urged to make known the changes they wished to see along whatever lines they thought might benefit their children. The parents priority-ranked their list of needs, and the League President arranged to join the Wheatley representatives in a meeting with administrative officials.

We plan to continue these meetings and to encourage the parents to participate in training their children as much as is feasible. We feel confident that they have never before considered the possibility of materially assisting the training process.

6.0 PLANS FOR THE FUTURE AND NEEDS FOR NEXT YEAR

During the past year, we have received requests for a variety of services from our department, and most especially from the laboratory section of it. Requests have covered a wide range of behavior management and training problems, exemplified by such questions as: "What can we do about Johnny's assaultive behavior?" "Can you remove Bobby's compulsive behavior?" "How do I get David to look at the pictures?" "How can we get Jackie to lose weight?" "Can you help us give Robert the chance to develop his writing skills?" "Can you give us your evaluation of Mary's potential for rehabilitation?" An equally wide range of technical problems have been brought to us: "Can you show me how to record Jane's ability to attend?" "Can your technician fix my classroom phonograph?" "How do I get the recording pen to work properly?" "Can I borrow your technician to design and construct a reinforcing device for my programmed instruction study?" "May we borrow your reprints on classroom behavior management?" "What kind of event recorder is best for my application?"

These are but a few examples of the kinds of help sought from us by Fernald personnel. Other areas in which we could potentially contribute both technical and advisory assistance have emerged as problems of training and evaluation, raised during meetings of the Professional Steering Committee and the Committee on Unitization.

We would like to be able to respond to these requests, for we believe they represent efforts on the part of new personnel to make use of the rapid progress in educational technology that is taking place in the "outside world" and to bring these advances to the residents of Fernald School.

Over the years, we have been developing the kernels of services that could be useful to the school as a whole. Some of these have been outlined in sections 1.123, 1.5, 2.4, 3.0, and 4.1. But, without staff, we cannot extend these services or develop them further to meet the needs of a truly habilitative environment.

As functional training units evolve at Fernald, the need arises for technical assistance, procedures for training-evaluation, and personnel to carry out the many functions involved in the ongoing evaluative research that should be integrated into the operation of every unit. We have recommended (see Appendix) that unit functions be developed empirically and considered as developmental experiments. By this we mean that ongoing evaluation should be concurrent with and, ideally, an integral part of

6.0 (continued)

habilitation in order to continue improving procedures, to modify goals, to train habilitating personnel, and to select the most appropriate procedures and programs for each resident. Habilitation that proceeds without ongoing evaluation and revision is destined to decelerate and eventually to retard the progress of unit residents (the current reality that many of us are trying to rectify) by permitting the staff to revert to what is easiest for them rather than what might advance the behavior repertoires of their pupils.

Because we would like to contribute to the development of the unit system that Dr. Barrett helped to formulate, we have requested some core supporting staff positions. (We have asked for these, rather than for professional positions, because we observe that the emphasis at Fernald is on professional positions without supporting staff--the pattern that accounts for so many of the professionals being unable to function except as high-paid clerks, carpenters, janitors, technicians, etc.)

6.1 Positions needed for the Behavior Department and their justification

- 6.11 Supervisor in Education. During the past year, the Behavior Laboratory has begun to provide training services to residents of Fernald outside of the laboratory. We are acutely aware of the need for someone to supervise the many untrained but very eager and highly motivated young people who have come to Fernald to help retarded children develop new behaviors. There is often no trained individual from whom new (or old) personnel can get competent guidance in selecting appropriate target behaviors for the children and in devising effective techniques for reaching these behavioral goals. Many of the younger staff members are actively seeking supervision, but there currently is no position within our department for an individual whose primary responsibility would be the development and supervision of effective training procedures to be carried out by the nonprofessional staff who are in daily contact with Fernald residents. A Supervisor in Education would be able to provide the necessary supervision of those untrained but essential young people who should be trained to train!
- 6.12 Research Assistant. To develop our functions of training consultation and assistance in techniques for behavior recording, we need a full time person to process and analyze the behavior records of the many Fernald residents we could serve. About 60 residents are now being served outside the laboratory, in classrooms, wards, recreational areas, etc. This number could be greatly increased if we were able to offer training to currently untrained personnel.

We hope to develop a centralized, coordinated file for the easy retrieval of each child's training history and current status. A Research Assistant would maintain such a file and would assist the various members of the Education and Training Department and the Behavior Department who are directly involved in training and habilitation of Fernald residents.

- 6.13 Supervising Laboratory Technician. In order to expand our operations and provide greater service to the residents and staff of Fernald, we need a person to work in conjunction with the Research Assistant. He would be responsible for conducting training sessions with portable training devices that can be moved from ward to ward and building to building. He would also be responsible for instructing other staff in the use of simple behavior recording procedures and for collecting the behavior records of children being trained.

- 6.14 Assistant Electrical Engineer. We are more and more frequently called upon by members of various departments to design and build equipment for both training and recording functions and, in effect, to redesign training environments for many children. We urgently need a position that will enable us to provide these services. An Assistant Electrical Engineer would essentially be an instrumentation engineer, proficient in both electronics and mechanical engineering, who would function full time to enable the Fernald staff to take advantage of the technological innovations necessary to bring the most advanced training methods to Fernald children.
- 6.15 Construction, installation, maintenance, and repair of training devices to serve the many residents of Fernald requires the services of a fulltime Junior Electrical Engineer. This individual would execute designs made by his supervisor and would be "on call" to maintain and repair devices in the classrooms and wards. He would also be responsible for ordering whatever supplies are necessary for constructing, installing, and maintaining training equipment.

We currently have trained people ready for these positions—people whose specialized functions have been developed during our five years of grant support. We would like to build upon and develop further our program of applied behavior analysis that has been seeded by our Mental Health Project Grant. The climate of Fernald appears to be more receptive to our potential contributions, but without state positions we will lose the people we have trained when our PHS grant runs out. We sincerely hope the school will help us as we try to further the programs of assistance outlined above.

6.2 A Grant Administrator for all Fernald grant funds that are held by the Treasurer's office

Last year we mentioned the need for a full-time Grant Administrator to serve all the grant-supported operations of the school. The past year's proliferation of serious problems (see section 1.113) makes the need even more acute if Fernald is to reap benefits commensurate with the funds granted. We know ours are not the only grant-supported operations that suffer from the personnel shortage and the grant-resistive operations of the Business Office. All grant-supported endeavors at Fernald are, apparently, encountering similar problems.

Grants are designed to provide personnel, facilities, and services beyond those afforded by the state. As such, the intent is clearly and strongly positive. Most institutions look favorably on grants, encourage their staff to apply for them, and provide the supportive clerical and administrative staff to handle purchasing, personnel, maintenance, and financial matters so that grant personnel may pursue the funded work.

For over two years we have provided one clerical position for the Business Office, salaried from Title I grant funds. For reasons unknown to us, this position was filled with a part-time co-op student. We are told that in addition to the Title I grant business, this individual has been assigned the paper work of two other grants: In-Service Nursing Education and the HIP grant—clearly too much for one part-time person, particularly at the clerical level.

We suggest that a grant-administrator position be established to function in conjunction with and under the supervision of the State Hospital Administrative Assistant and that this individual be provided with at least two grant-administrative clerical positions.

- 6.21 Functions of grant-administrative team. This grant-administrative team would handle all personnel, purchasing, and financial matters pertaining to all grant funds held by the Treasurer. Examples of duties might include responsibility for 1) requesting funds on schedule, 2) negotiating and corresponding with granting agencies on all financial matters including negotiation of yearly indirect cost rates when necessary, 3) maintaining financial records on each grant, 4) maintaining a file of forms and supporting documents necessary for submission of proposals and continuations, 5) keeping up to date on all revisions in granting agency requirements, 6) assisting grant applicants with budget problems, 7) expediting the purchasing of grant equipment and hiring of grant personnel, 8) keeping running balances in all budget categories of all grants, 9) maintaining a readily available and up-to-date directory of "Who's Who in Granting Agencies" to facilitate contacting appropriate persons at the state, regional, and Washington levels, and 10) keeping the Superintendent informed on all grant-related fiscal matters requiring his approval.
- 6.22 Support for grant-administrative team. If it is impossible to obtain indirect cost allotments ordinarily used for the salaries, supplies, and equipment of grant-administrative personnel, we suggest that these salaries be drawn from each and all Fernald grants to be handled by the administrative team. Thus, support for the team is distributed among all the budgets it manages. Maintenance and facilitation of adequate grant support thus becomes a matter of the team's supplying its own salaries!
- 6.3 Lack of storage space poses more pressing problems as we acquire more equipment and training supplies. Overflow storage now fills our corridors to the point that there is only single-file passage. The classroom staff has resorted to piling items on top of individual training cubicles--which we hope will not collapse from the weight.
- We are pleased to note that a recently established Space Committee has obtained dimensions of all rooms in each building--a first step in planning for more effective utilization of space. When this committee has resolved the priority problems associated with CERC activities and the imminent availability of two new buildings, we hope that they will help us obtain storage use of the former Civilian Defense room in GBU which we discussed in last year's report.
- 6.4 Repair of damage to the Ford Club Wagon we bought for Fernald and for which insurance payment has been received. On 1 April 1969, someone backed into the side of vehicle S-2468. On 23 May, a check was received from Liberty Mutual to cover the cost of repairs, estimated at \$85.00. Unfortunately the check was made out to the Commonwealth of Massachusetts instead of to the school. We hope the necessary arrangements will be made to repair the vehicle, which enables us to transport children who otherwise have no access to training facilities.
- 6.5 Maintenance, personnel, and facilities problems remain essentially as described in last year's report, section 6.3. Some small improvements and initial steps toward others are noted in section 1.8 of this report.

The most pressing new needs, which were noted in writing to the Business Office on 31 March 1969, are:

- 6.51 Fifteen fluorescent ceiling fixtures with two 40-watt bulbs and reflectors to provide appropriate lighting for the classroom in the GBU basement. The existing lights do not provide enough illumination to use the area as a classroom, especially in the fall and winter months when darkness precludes efficient use of the room after 3:30 P.M. Because some of the instruction by volunteers necessarily takes place in this room well after that hour, we most earnestly request that the terribly substandard lighting conditions be corrected.
- 6.52 Vinyl flooring to cover the filthy concrete slab in the GBU basement classroom. We are unable to clean the concrete floor in the classroom, and we have no janitorial service for it. Ants gain entrance to the classroom through cracks in the slab, and with candy rewards in use, the problem of insect infestation is considerable. We originally suggested vinyl sheet flooring, but we have since learned that, because of the radiant heating in the floor, vinyl asbestos tile is preferable.

One of the teachers who regularly uses this classroom has obtained six estimates of the cost of installed vinyl asbestos tiling. These range from \$480 to \$520--a small price to pay for enabling us to clean the floors that children play on!

Most of the expense of renovating the classroom area was borne by the Title I grant. We hope that the school will be able to spare enough funds to provide good lighting and cleanable flooring for this new training area.

APPENDIX

Some Initial Thoughts on Unitization

Since the operations involved in unitization are beyond enumeration in this type of report, the following thoughts should be considered only as a beginning--hardly comprehensive or in sufficient detail for enactment. They may, however, serve as a basis for discussion of functional unit implementation.

1. Unitization of the entire Fernald complex should not be considered at this time simply because its desirability has been legislated. The enabling legislation and accompanying appropriations have not been approved, and positions for key personnel have not been created. In the absence of supportive administrative structure (to say nothing of appropriate physical facilities), the most we can hope for at this time is formation of a few "would-be" or unit "kernels", all of which would be forced to perform at best a half-job.
2. In the absence of administrative personnel responsible for all non-medical aspects of personnel, programming, and provision of facilities, supplies and equipment, the formation of "would-be" units will necessarily be slower and their functions more temporary than could be anticipated had the appropriate administrative personnel and supportive machinery been provided prior to the inception of this substantial reorganization. Setting an early deadline under these conditions can only guarantee failure and added frustration at the obstacles that will remain beyond the direct control of any Unit Director.
3. "Would-be" units should not be forced in the absence of competent Unit Directors and, most especially, building supervisors who are equipped by training, experience, and demonstrated leadership ability to implement programs by daily participating with both ward personnel and residents. The likelihood that current building matrons can fulfill the functions of building supervisors, as outlined in the Planning Project report, is very slim.
4. At the start, "would-be" units will necessarily be few in number. These unit "kernels" should be those that seem to be emerging from existing staff efforts and with existing or imminently available professional persons for directors of unit "kernels".
5. These unit "kernels" should be considered as developmental experiments designed:
 - A. to locate and define, for example,
 - 1) functions of unit and its staff,
 - 2) operationally feasible and functionally oriented lines of communication and responsibilities of various members of the unit staff,
 - 3) target behaviors for training of unit residents,
 - 4) methods for initiating and sustaining 24-hour training and behavior-supportive procedures for unit residents,
 - 5) the context and procedures for training unit staff to carry out their specialized responsibilities,
 - 6) the eligibility qualifications for unit staff positions,
 - 7) recruitment and hiring procedures,
 - 8) procedures for evaluating both the staff and the effectiveness of programs for unit residents,
 - 9) the problem areas and/or types of specific problems which might be handled most effectively through consultation with one of the professional departments (e.g., medicine, education, psychology, social service, etc.),

Appendix (continued)

- 10) the types of opportunities for unit residents to acquire target behaviors that could best be provided by the academic and/or vocational training programs,
 - 11) the types of intra- and extra-institutional community experiences or behavior-expanding opportunities the unit residents should have available beyond those offered by the academic and vocational training programs (or how these programs should be expanded to facilitate developing the behavior repertoires of unit residents),
 - 12) methods for communicating with and, if possible, involving parents of unit residents in their training--both within and outside of the unit.
- B. to establish precedential lines of responsibility and communication between grant-supported personnel and state-salaried personnel (since it is assumed that some necessary positions not yet made available by the Commonwealth will be supplied through grants).
- C. to establish fiscal precedents with respect to
- 1) unit budgets
 - 2) ordering and obtaining supplies and equipment necessary for unit training programs. In the absence of a facilitator-manager (Assistant Superintendent of Management and Business Administration) and an Assistant Superintendent of Social Development, Education and Training to support and supervise non-medical Unit Directors, there must be some established procedure that enables Unit Directors to obtain what they need to conduct their programs.
6. Non-medical units should be functional with respect to the target behaviors they teach most effectively--both to residents and staff. Age and sex of residents seem somewhat irrelevant to the functions of training programs within units. Far more important are the demonstrated behavioral competencies and potentials of the unit residents.

It is unlikely that all unit staff members can be trained to be "all things to all men". It seems more feasible to consider training unit staff to reach clearly defined behavioral goals with limited numbers of residents. Ward assignments for residents within a unit might then become functional, i.e., designed to provide specialized learning opportunities. Staff members then become specialists, and units offer a range of specific types of training irrespective of the age and sex of their residents. The equipment and physical facilities of a unit should be selected and designed to assist in teaching the behaviors that are consistent with the unit's function.

7. Flexibility in placement of both residents and staff. With the exception of a specialized unit for chronic medical cases and, perhaps, a non-medical unit specializing in training the blind, most other units might be considered as temporary quarters for most unit residents. The degree of permanence--or the definition of "temporary"--should be consistent with the unit's functions. Thus, a "self-support" unit (e.g., Kelly and Chipman) would likely be a temporary placement for residents whose next move is out of Fernald.

A Fernald-community unit might be a more permanent placement for men and women who may become constructive members of the intra-institutional community but who lack the skills necessary for independent living. Within such a unit, there might be a segment of the group who will later move on to the "self-support" unit. Thus, both permanent and transient residents might be served effectively by programs in a single unit (unit not being synonymous with building).

Appendix (continued)

The new Rehabilitation Unit with its 90-day intensive training program may find it can function most effectively if it includes a "motor-maintenance" division (e.g., Wallace Building) whose staff members are trained to carry out specialized procedures that will sustain the progress brought about in the intensive training division of the Rehabilitation Unit. Some residents of the "motor-maintenance" division (especially young children) might eventually be able to return to a unit with more comprehensive training if some staff members of all units are specially trained in motor-maintenance procedures. Such training could be obtained under the auspices of the Rehabilitation Unit's motor-maintenance staff.

The above implies considerable flexibility in staff placements. For specialized training, staff members could be assigned temporarily to a unit or a unit sub-division to acquire certain skills taught most effectively by *in vivo* active participation for a specified period of time.

8. Dependence of units on Fernald community resources. Whatever functional units might emerge at Fernald should not be thought of as sufficient unto themselves with respect to furnishing the breadth of training experiences their residents should have. The entire institutional community should be functionally redesigned to support and expand existing behavior repertoires of all its residents--and many of its staff. The community-manager functions of the Assistant Superintendent for Business Administration were conceived as the fulcrum upon which balances the effectiveness of new programs. Without a sympathetic expeditor-developer, unitization may be no more than a very costly series of complicated flow charts gathering dust on administrative walls.

Beatrice H. Barrett
27 January 1969