Temperament *and* Behavior Disorders in Children

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1 BEHAVIOR DISORDERS AND THE CONCEPT OF TEMPERAMENT

In the present volume we are concerned with examining certain of the factors which contribute to the development of behavior disorders in young children. The particular focus will be on the child's temperament and on the role it plays in the emergence and elaboration of behavior problems. Despite this focus, however, we will not and cannot consider temperament in isolation as the cause for disturbed development. Together with all serious workers in psychiatry and psychology we recognize that both normal development and disturbances in development, rather than being the products of any single factor, result from complex interactions between the child and his environment. Our concern with temperament and our divergence from other theories, therefore, do not derive from a disagreement with the concept of behavioral development as the consequence of the continuous interaction between an organism and its environment, but rather from a different view of the variables which are interacting.

Our concern with the role of temperament as an organismic contributor to the course of behavioral development is not new. Beginning over fifteen years ago, we came increasingly to be impressed with the contribution made to behavioral development by reactive characteristics of the child, particularly his pattern of temperamental organization. Our own clinical experience, as well as that of others,[1, 2, 3, 4, 5, 6] suggested that an exclusive concern with environmental influences could not explain the range and variability in developmental course exhibited by individual children. Nor could it explain the marked differences in the responses of children to similar patterns of parental attitudes, values, and child-care practices.[7, 8, 9, 10] It was evident, too, that parents frequently showed significant variations in their response patterns to their different children,[11] suggesting that the child's own characteristics as an individual could and did act as specific stimuli for the parent.

To test the validity of these personal and clinical impressions, we mounted a longitudinal study in 1956, the central aims of which were the objective definition of temperamental characteristics in children and the delineation of the contributions which such characteristics made to both normal and aberrant behavioral development. Although we started to study each child in our sample of 136 children during early infancy and so had no sound basis for predicting which child would develop in an

abnormal way, we anticipated that a sizable number of the children in the study population would develop behavioral disturbances. This indeed happened and made the present report possible.

Since the children were studied from early life onward, and both their temperaments and environments were repeatedly assessed, the data make it possible to deal with two issues of importance for child psychiatry: 1] the manner in which temperamental patterns influence the likelihood that a behavior disorder will develop, and 2] an anterospective view of the emergence of behavioral disturbance, together with the factors contributing to symptom formation and evolution.

Before entering upon the substance of this inquiry, it is of value to consider the place of our main variable, temperament, in the behavioral scheme. Temperament may best be viewed as a general term referring to the *how* of behavior. It differs from ability, which is concerned with the *what* and *how well* of behaving, and from motivation, which seeks to account for *why* a person does what he is doing. When we refer to temperament, we are concerned with the *way* in which an individual behaves. Two children may each eat skillfully or throw a ball with accuracy and have the same motives in so doing. Yet, they may differ with respect to the intensity with which they act, the rate at which they move, the mood which they express, the readiness with which they shift to a new activity, and the ease with which they will approach a new toy, situation, or playmate.

Thus, temperament is the *behavioral style* of the individual child—the *how* rather than the *what* (abilities and content) or *why* (motivations) of behavior. Temperament is a phenomenologic term used to describe the characteristic tempo, rhythmicity, adaptability, energy expenditure, mood, and focus of attention of a child, independently of the content of any specific behavior. A formal analysis of behavior into the *why,* the *what,* and the *how* has also been utilized by other workers, such as Guilford [12] and Cattell,[13] the latter of whom identifies "the three modalities of behavior traits" as: 1] "dynamic traits or interests . . . [including] basic drives plus acquired interests such as attitudes, sentiments," etc.; 2] "abilities, shown by how well the person makes his way to the accepted goals"; and 3] temperament, "definable by exclusion as those traits which are unaffected by incentive or complexity . . . like highstrungness, speed, energy and emotional reactivity, which common observation suggests are largely constitutional." [14]

Temperament is not immutable. Like any other characteristic of the organism, its features can undergo a developmental course that will be significantly affected by environmental circumstances. In this respect it is not different from height, weight, intellectual competence, or any other characteristic of the individual and, as is the case for all such characteristics, the initially identified pattern of the young child may

be relatively unchanged by environmental influences, or it may be reinforced and heightened, diminished, or otherwise modified during the developmental course.

The need for studying the child's own characteristics and the contribution these might make to his psychological development were highlighted by the paucity of information available on temperament when we began our longitudinal study in the mid-1950's.[15] The contribution of other factors to the development of behavior disorders had been examined through many lines of inquiry in the previous decades. Important insights had been provided by these studies on the role of heredity, pre- and perinatal brain damage, biochemical and neurophysiological disturbances in development, unfavorable parental practices and attitudes, intrafamilial conflict, conditions of social stress and deprivation, and distortions of the learning process involved in the child's socialization. On the other hand, little attention had been paid to the nature of the child's own characteristics as a reactive organism and in particular to the possibility that the manner in which his individual pattern of reactivity is organized may affect his development. It is true that in 1937 Freud had asserted that "each individual ego is endowed from the beginning with its own peculiar dispositions and tendencies," [16] and that in the 1930's two pioneer workers in child development, Gesell [17] and Shirley,[18] had reported significant individual differences in the behavioral characteristics of infants. Somewhat earlier, Pavlov and his followers [19] had postulated the existence of congenitally determined types of nervous systems as basic to the course of subsequent behavioral development. They had classified different types of nervous systems according to the balance between excitation and inhibition, and had attempted to explain features of both normal and abnormal behavioral states on this basis.

In the 1940's and 1950's, a number of studies appeared which reported observations of individual differences in infants and young children in specific, discrete areas of functioning such as motility,[20] perceptual responses,[21] sleeping and feeding patterns,[22] drive endowment,[23] quality and intensity of emotional tone,[24] social responsiveness,[25] autonomic response patterns,[26,27,28] biochemical individuality,[29,30] and electroencephalographic patterns.[31] These various reports emphasized that individual differences appeared to be present at birth and are not determined by postnatal experience. Although studies of this kind provided valuable data and leads for further investigation, they were too narrow in focus to provide a basis for systematic and comprehensive understanding of behavioral individuality in early childhood, and of the significance of such individuality for psychological development.[32]

A number of factors were responsible for the neglect of temperament as an area of investigation. Important among these was the general disrepute of earlier constitutionalist views that had ascribed heredity and

constitution as causes for complex personality structures and elaborate psychopathological syndromes. It was our repeated experience in the early and mid-1950's to find most of our colleagues reproaching us for returning to an outdated and discredited constitutionalist position when we expressed the idea that individual organismic behavioral differences important for development might exist in young children. In a period when behavioral disturbance was most generally considered to be produced by the environment, to pay attention to the intrinsic characteristics of the reactor was viewed as a return to a static and almost Lombrosian constitutional typology. It was indeed the period of the "empty organism" for many workers and thinkers in psychiatry.

In spite of the prevailing atmosphere, however, a set of facts could not be neglected. These were: 1] the lack of simple relationship between environmental circumstances and their consequences; 2] individual differences in susceptibility to stresses and pressures; 3] differential responses to similar patterns of parental care. These facts could not be denied, and increasingly led a number of workers [33, 34, 35, 36, 37] to concern themselves with attributes of the individual as an organism which, in their view, could significantly contribute to his idiosyncratic responsiveness to environmental events. Different workers emphasized different attributes of the individual. Independent of the attribute stressed, the most important result of these studies was a rekindling of concern with, and interest in, the contributions which organismic individuality made to development.

This concern with the child's own characteristics as a force in development has accelerated sufficiently in the past few years so that currently there is a broad consensus among investigators in child psychiatry and child development that the consideration of both organismic and environmental factors, as well as their mutally interactive influences, is required for any comprehensive study of a child's normal or aberrant development.

However, there is still a need to convert agreement in principle to agreement in practice. For the child's individuality to be incorporated seriously into psychiatric theory and practice, detailed information on specific patternings of interaction between organismic and environmental factors in development is required. Such information can be obtained only from a longitudinal study that identifies temperamental patterns and follows the dynamics of the interaction of temperament and environment over a significant segment of the developmental course. Though such a study makes special demands for sample maintenance and long term devotion to data collection and analysis,[38, 39, 40, 41, 42] it is uniquely effective for the exploration of the relation between the early characteristics and the later development of the individual, and for the delineation of individual behavioral sequences. For most other questions, serial sampling of appropriate populations at different ages represents an entirely adequate and more efficient study design. For example, a determination of the types of behavior problems characteristic of children at different ages can be made by the simultaneous study of representative samples drawn from different age groups. If, however, one is concerned with developmental questions involving the relationship between specific attributes of the young child and the emergence of behavioral disturbance at an older age or with the identification of the factors leading to specific patterns of symptom formation and evolution, one is forced to study the same individual at more than one point in time—that is, to pursue a longitudinal investigation.

Furthermore, such a longitudinal study must be anterospectively oriented if the distortions of retrospective recall by parents or other reporters are to be minimized. The vast majority of investigations into the origins of behavior disorders in childhood have relied upon retrospective reports of events in early childhood obtained either from older children, from the parents of younger children, or from adults suffering from behavioral disturbances. For a number of decades, the assumption that retrospectively obtained histories of early childhood events, feelings, and fantasies represented a valid body of data on which to base theories of child development went virtually unquestioned. In recent years, however, this assumption has been challenged by the findings of several investigations that question the accuracy of mothers' retrospective reports on the early developmental histories of their children. Several studies, both from our own and other centers, have revealed significant distortions in the accuracy of such reports even when the child's development has been normal.[43, 44, 45] Wenar, in a recent review of these studies, has concluded that "A good deal of past research has leaned heavily on the slenderest of reeds. It may well be that mothers' histories mislead more often than they illuminate and, as yet, we are in a poor position to know when they are doing one or the other." [46]

If retrospective parental reporting of the child's normal development is unreliable, the unreliability will undoubtedly be even greater when the child presents a behavior disorder. In such cases, the inaccuracy of parental recall will be magnified by defensiveness, by the search for plausible explanations, or by the influence of popular theories about the causes of psychopathology. The accuracy of parental histories describing the development of behavior problems in their children was tested in our New York Longitudinal Study.[47] The parent's retrospective report of the child's behavioral development was compared with the information collected anterospectively in the course of the longitudinal study. Significant distortions of parental recall were found in one-third of the cases. The distortions included: 1] revisions of timing to make the sequence of events conform to prevalent theories of causation; 2] denial or minimization of the problem; and 3] inability to recall pertinent past behavior. Of additional interest was the lack of systematic relationship

between the degree of internal consistency and fluency of the parent's retrospective report and the correlation of this report with the corresponding anterospective data.

It is true that the clinician must, on many occasions, utilize retrospective data obtained from patients and parents. He must evaluate the patient's problem and institute treatment on the basis of whatever data are available. In addition, the issues emphasized by a patient in his retrospective recall, even if factually inaccurate, may provide useful clues as to his significant concerns and preoccupations. On the other hand, the research worker has a different responsibility. His obligation is not immediate action or patient care, but the accumulation of pertinent and accurate data. In this task, retrospective histories, if utilized at all, must be evaluated with great caution.

The need for anterospective longitudinal studies in the investigation of the origins and evolution of behavior disorders in children has been recognized by a number of workers at Berkeley,[48] the Fels Institute,[49] Yale,[50] and Topeka.[51] Longitudinal studies at these centers have made a number of contributions to our knowledge of normal and aberrant behavioral development. The possible significance of temperamental characteristics of the child in interaction with parental functioning has been indicated. A lack of correlation between the child's patterns of psychodynamic defenses and the occurrence of behavioral dysfunction has been found. Symptoms typical of various age-periods have been tabulated, their vicissitudes over time traced, and correlations among different symptoms determined. However, each of these studies has been limited either by small sample size, which has not permitted generalization of the findings, or by the absence of systematic psychiatric evaluation of the children, which has severely restricted the possibility of categorizing the behavior disturbances and making meaningful correlations with the longitudinal data on behavioral development.

The identification of the limitations for interpretation intrinsic to earlier studies helped us to formulate the issues and problems with which we had to be concerned in our own longitudinal study. The problem was threefold:

1] Methods for studying temperament and for following a substantial number of children for a long period of time by these methods had to be developed.

2] A procedure for identifying children in the group who develop behavior disorders had to be established.

3] The conditions of care, environment, and stress confronting these children had to be determined and recorded. With these data it would be possible to determine the differential risks that attach to specific temperamental patterns and to study the temperamental characteristics and environmental features involved in the production of normal or disordered behavior.

Neither in theory nor in fact would we expect a one-to-one relation to exist between a specific pattern of temperament and the emergence of a behavior problem; temperament, in and of itself, does not produce a behavior disorder. We would anticipate that in any given group of children with a particular patterning of temperamental organization, certain of these children would develop behavior disorders and others would not. Hopefully, this variability in consequence could be identified as deriving from differences in the patterns of care and other environmental circumstances to which the children were exposed. However, we also would anticipate that given a uniform environment and set of stresses, certain patternings of temperament are more likely to result in behavior disorders than are others. We are therefore concerned with the identification of both the differential likelihoods for the development of disturbances that attach to different temperamental patterns, and the specific environmental factors that interact with each temperamental type to result in a pathologic consequence. These tasks have represented the major goals of the study and are reported in the present volume.

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2 THE BACKGROUND: THE NEW YORK LONGITUDINAL STUDY

To understand the findings on the interaction between temperament and environment in the development of behavior disorders, the longitudinal study from which the information has been drawn must be considered in detail.

The families whose children were selected for longitudinal study were of middle- or upper-middle-class background, resident in New York City or one of its surrounding suburbs, and willing to participate in a long-term study of the behavioral development of their children. The specific restrictions regarding social class and geographic limits were introduced in order to make the sample relatively homogeneous for background and to reduce, to some extent, social and geographical differences as a source for variance in behavioral development. In this way we would be better able to analyze individual differences in the children themselves. In March, 1956, the first of the families were enrolled. Enrollment was begun either shortly after a child had been born, or during the pregnancy of which the child was the product. The collection of cases was cumulative and was continued until 85 families were included in the study. Since for certain research purposes comparisons between siblings were to be made, subsequent children from enrolled families were included in the study sample. The cumulative collection of families was completed over a six-year period, with the 85 families contributing 141 children for study. Retention of the cases, on the whole, has been excellent. Over the twelve-year period, five children have been lost from the study because of long-distance changes in residence, and 136 of the original 141 children (96 per cent) are still being followed.

Forty-five of the 85 families have one child; 31 have two; 7 have three; and 2 families, four children enrolled in the study. The ages of these 136 children at the end of June 1966 showed the following distribution: forty were 10 years of age, twenty-five were 9, eighteen were 8, sixteen were 7, fifteen were 6, ten were 5 and twelve were 4 years old. Sex distribution was almost equal, with 69 boys and 67 girls in the total sample.

The study families are predominantly Jewish (78 per cent), with some Catholic (7 per cent), and Protestant (15 per cent) families. There is one Negro and one Chinese family. Almost all parents were born in the United States. Forty per cent of the mothers and 60 per cent

of the fathers had both college educations and postgraduate degrees, and only 9 per cent of the mothers and 8 per cent of the fathers had no college at all. With only three exceptions, all of the fathers worked either in one of the professions, or in business at a management or executive level. Eighty per cent of the mothers had occupations similar to the fathers, and the remaining 20 per cent had been employed as office workers or secretaries. At the time of the birth of the first child enrolled in the longitudinal study, half of the mothers were less than 31 years old, with an age range of 20 to 41 years. The median age of the fathers was 33.6 years; the youngest was 25 years and the oldest, 54 years of age. The length of marriage at the child's birth ranged from one to nineteen years, with half of the group married for at least 5.3 years.

The attitudes and expressed attachments of the parents to child-care practices showed marked homogeneity. This uniformity within the group was also evident in the responses of the parents on the Parental Attitude Research Instrument (PARI) administered to both parents when each child in the study population reached three years of age. However, the homogeneity of expressed attitudes was not duplicated in the actual child-care practices and patterns of parent-child interactions present within the families. Considerable variability existed with regard to child-care practices and made possible the study of different patterns of interaction between various types of parental functioning and different styles of temperamental organization in the children. In addition, although the parents showed uniformity in expressed child-care attitudes, they by no means revealed the same preferences for given patterns of temperament, nor showed similar tolerances for different temperamental styles in their children.

Expressed parental attitudes were permissive and child-centered. Emphasis was placed on the importance of identifying and satisfying the infant's needs. It was considered quite acceptable and even desirable for the father to participate actively in the care of the child, though the actual degree of paternal involvement varied widely from family to family. Spock's manual, *Baby and Child Care*,[1] was uniformly utilized as a source of child-rearing advice, though a number of the mothers felt free to diverge on occasions from its specific recommendations. The families had pediatricians who were also actively consulted by most of the parents for guidance in the routine care of the baby. The parent group as a whole was oriented toward the desirability of obtaining psychiatric advice and, if necessary, treatment for a child with deviant behavioral functioning.

With almost no exception, the mothers in this group expressed an acceptance of the self-demand approach to feeding. Approximately 50 per cent breast-fed their infants and offered supplementary bottle feedings. In most of these cases, the shift to the exclusive use of bottles was

gradually accomplished during the first two to five months. Weaning from the bottle was started when the child was between five and eleven months of age. By the end of twenty-four months, more than 50 per cent of the children were completely weaned. Weaning of the remaining children was accomplished, with five exceptions, by the age of four years.

In toilet training a generally permissive approach was reported. The parents did not press vigorously for the establishment of early training. Only 20 per cent of the parents started training before the child was twelve months of age. Half of the group did not begin any systematic bowel or bladder training until the children were at least sixteen months old, and in most cases training was completed between eighteen and thirty-six months. However, in a few children training was not successfully completed until the fourth year.

Some of the mothers continued in their occupations following the birth of the child or resumed them on a full-time (5 per cent) or part-time (32 per cent) basis by the time the child was two years old. However, the working mothers all described the care of the children as their major responsibility.

Attendance at nursery school was considered a socially desirable experience for the child by almost all the parents, and 89 per cent of the children were enrolled in various private nursery schools at three or four years of age. Ten per cent started their school experience at the kindergarten level at five years, and one child began school with admission to the first grade at six years. The attendance at nursery school or kindergarten made it possible to gain information on each child's interaction with the broader environment including peer groups, teachers, and structured demands outside the home in addition to that obtained on his interaction with parents and other members of the family unit.

METHODS OF DATA COLLECTION

The detailed design of the study, including the techniques of sample maintenance, data collection, scoring of data for temperament, and other features of procedure for the first two years of life are discussed in detail in a previous publication.[2] At this point it is necessary to provide a brief synopsis of this earlier presentation, as well as to indicate the nature of the data obtained at later age-periods.

Data necessary to define the child's temperamental organization and to delineate his developmental course were obtained from several sources. The parents were interviewed at regular intervals regarding the characteristics of the child's behavior in the routine functions of daily living, his responses to any changes in these routines or in his environment, and his reactions to any special events or life situations. Information was obtained from the teacher regarding the child's initial

adaptation to school and his overall functioning during each school year. Direct observations of his behavior in school were obtained at least once a year. Behavioral observations of the child's play and problem-solving activities were made during the administration of standard psychological tests at three and at six years of age.

Other data included: 1] measures of cognitive functioning at three and six years of age; 2] estimates of parental attitudes and child-care practices obtained when the child was three years old; 3] wherever indicated, additional psychometric tests, measures of perceptual functioning, and clinical psychiatric evaluations were made; 4] information from special pediatric or neurological studies, hospitalization, or treatment by psychiatrists or psychotherapists was gathered whenever such diagnostic or therapeutic procedures had been carried out.

In the collection of data on the child's behavioral characteristics, certain principles were strictly observed to insure the maximum validity, objectivity, and reliability of the information obtained:

1] The parent and teacher interviews focused on the details of daily living during feeding, play, sleep, etc. Behavior was described in factual descriptive terms with a concern not only for what the child did but *how* he did it. Statements as to the presumed meaning of the child's behavior were considered unsatisfactory for primary data. When such interpretative statements were made by a parent or teacher, the interviewer pressed for an actual description. Thus, to a parental report that "the baby hated his cereal," or that "he loved his bath," the question was always posed, "What did he do specifically that made you think he loved or hated it?" Similarly, if a teacher commented that "this child always gets angry if he doesn't get his way," she was asked to give several examples with detailed descriptions of the manner in which the anger was expressed. If a staff observer reported that a child "was afraid to ask the teacher for help," she was instructed to spell out in detail the incidents she had observed and describe the behavior she had interpreted as "fear."

2] Special emphasis was placed on the recording of a child's first response to a new stimulus and his subsequent reactions on re-exposure to the same stimulus until a consistent long-term response was established. Such stimuli might be simple, as the first bath or the introduction of a new food, or they might be complex, as the move to a new home, the introduction of a new person into the household, or the first contact with nursery school. The sequence of responses to new stimuli, demands, and situations, whether simple or complex, was found to give especially rich information on a child's individual temperamental pattern.

3] The contamination of the data collection by "halo effects" was avoided by using different staff members for different phases of the data collection for any specific child. Thus, the parent interviewer did not do the teacher interviews or direct observations, and the same staff

member never did both the teacher interview and direct school observation on the same child.

4] Quality control of the interviews and observations was established by periodic checks of intra- and inter-interviewer and observer reliabilities. The item scoring of the behavior protocols also served as a continuous check on the quality and quantity of the data in each record. Interview protocol forms were revised when necessary to make them appropriate for succeeding age-periods and were pretested on samples of children not included in the longitudinal study.

A. Parent Interviews

To obtain detailed longitudinal behavioral information on a sufficiently large sample of children, a readily available and economical source of data is necessary. Parents represent just such a source because of their continued direct observation of the child. This could otherwise be duplicated only by an investigator living in the home. The crucial question, whether the parental reports represent valid reflections of the child's actual behavior, was answered by comparing these reports with direct observations of the child's behavior in the home. Twenty-three children, ranging in age from less than three to eighteen months or more, were drawn from the study population by case number to form the direct observation group. In eighteen of these cases, observations were made by two observers, neither of whom was aware of the data obtained by parental interview. The direct observations were each independent of the other and were separated by seven to fourteen days. Each observation occurred within two weeks of a parent interview. In the remaining five cases, only one observation was made within one week of the interview. The observation period was planned so that it would include a period of the day during which it would be possible to observe the child's behavior at feeding, sleeping, bathing, dressing, play, and elimination. Each observation lasted from two to three hours. Although no single period could be selected in which all phenomena were observable, the times chosen were ones in which most could be noted. In addition, the observers recorded the reaction of the children to themselves as strangers, both initially and throughout the course of the observation period. The observations were recorded as detailed behavioral descriptions.

The behavioral observations were scored for temperamental characteristics by the same criteria * as were the parent interviews, and preponderance for each category was determined. Comparisons of the scores of the direct observations with those of the parental interview showed agreement at the .01 level of confidence. The independent direct observations were in agreement with one another at the .05 level of

* The definitions of each temperamental category and the criteria for scoring are summarized later in this chapter.

confidence. Thus, each of the episodes of observation produced behavior protocols which agreed more fully with the overall characterization of the child derived from the parental interview than they did with one another. This should not be surprising, since immediate circumstances present at each instant of episodic observation would be expected to enhance the difference between short periods more than they would effect the interrelation between any single period and overall functioning. These findings permitted us to conclude that the data of the parent interview were a valid reflection of the child's behavior. In our judgment such accurate parental reporting is possible if descriptive factual information is requested and the behaviors to be described are not too remote in time.

The mean age of the children at the time of the first parental interview was 3.3 months, and well over half of the children were less than 2.5 months old. These interviews were conducted at three-month intervals during the first eighteen months of life, then at intervals of six months until five years of age, and yearly thereafter. The interviews focused on eliciting detailed factual descriptions of the behavior of the child in everyday life situations over the preceding time interval. In early childhood, the data were derived from the child's behavior during such activities as feeding, sleeping, dressing, bathing, nail cutting, handling, diaper-changing, dressing, and contact with people. Later interviews were also concentrated on the accumulation of detailed, factual, behavioral descriptions. At each age-stage, the range of questions was expanded to obtain behavioral information concerning the child's development and his utilization of new modes of functioning. For example, in contrast to the emphasis upon action in the earlier interviews, the later interviews focused attention on problem solving, characteristic patterns of learning, play preferences, social interactions and, most importantly, on the circumstances, form, and content of the child's adaptive behavior. Included, too, was the collection of data relevant to the development of the child's interest patterns and to his characteristic responses to success and failure.

B. School Observations and Teacher Interviews

Since the overwhelming majority (89 per cent) of the children attended nursery school, this first formal school experience was utilized as a source of direct observational data on the behavior of the child. In addition, the nursery school teachers were interviewed at two points in time. The first interview occurred during the period of the child's initial adaptation to the nursery school situation, and the second during the latter portion of the school year. If the child attended nursery school for more than a single year, both the behavioral observation and a single teacher interview were conducted each year. Similar observations

and teacher interviews were conducted during the kindergarten and the first elementary school years.

The yearly nursery, kindergarten, and elementary school observations lasted one hour and, whenever possible, were scheduled for the indoor "free play" period or for some combination of "free play" and routinized activity. An hour was found to be long enough to provide a meaningful sequential picture of the child's behavior.

The observer had no previous knowledge of the child's history or behavior. She sat unobtrusively in a corner of the schoolroom. The child who was being observed had no knowledge that he was being studied either before, during, or following the period of observation. The observer noted the general and specific attributes of the setting and every observable verbal, motor, and gestural interaction of the child with materials, other children, and adults. All notations of behavior were made in concrete, descriptive terms. Inferences as to the meaning of the child's behavior were avoided. The observer recorded any failures to catch verbalizations or other behavior, together with any incidence of "noninteraction." For example, if the subject was off playing ball by himself while a whole group was involved in making Easter hats, the occurrence was described. Duration of sequences was also noted. The notes of the observation were edited on the same day, and dictated or written out in full soon after.

The teacher interview was conducted by an investigator other than the observer, one who also had no previous knowledge of the child. The interview was based upon a detailed questionnaire and took one and a half to two and a half hours to administer. It aimed at gathering descriptive details of the child's day-to-day behavior with respect to routine events (such as arrival, departure, dressing, eating, toileting, and resting), play activity (both structured and "free," solitary, parallel, and social), responses to people (peers and teachers), mood and emotional responses (instances of anger, fear, frustration, pleasure, and expressiveness). Questions focused also on the child's initial reactions and successive adaptation in each of these areas. The teachers seemed to find it relatively easy to give the necessary information because of its specific nature. Interviewers quoted verbatim evaluative or interpretative comments and probed for the concrete bases on which they rested. Where the source of the evaluative statements remained unclear or vague, it was so noted.

C. Behavioral Observations During Standard Test Situation

Psychological testing and direct behavioral observation were carried out when each child was three years old, and again when he was six years of age. In order to compare the direct observational data on the children studied, it was necessary to select a situation that was both standard in form and sufficiently diversified in content to permit the

observation of a wide range of behavioral responses. These needs led to the utilization of standard intelligence testing (Stanford-Binet, Form L) as the nucleus of the observational situation. The children were tested at three and again at six years of age by a psychologist in a fully equipped children's playroom. The procedure was witnessed by an independent observer who kept a running written record of the child's behavior. The observer, in the room before the child entered, did not participate in the testing procedure. The duration of direct observation was usually at least one hour. It began with a warm-up period during which the child became acquainted with the examiner and the facilities of the playroom and was allowed free access to all toys. Whenever possible, the child was separated from his mother. This was followed by formal testing, which proceeded as far as the responsiveness of the child permitted. The final period, after the completion of testing, was one of free play on the part of the child and ended with his cleaning up and departing.

D. Parental Practices and Attitudes Interview

When the child was three years old, a special structured interview to elicit information regarding parental practices and attitudes was held with each mother and father separately but simultaneously. These interviews were conducted and taped by two staff members who had had no previous contact with the parents. Immediately after the interview, which lasted from one and a half to four hours, each parent filled out the Schaefer and Bell Parental Attitude Research Instrument (PARI). These interviews provided data regarding the style of parental practices, as well as information on the parents' attitudes toward the child, their family role, and their relationships.

DATA ANALYSIS

The data available on the 136 children made it possible to define the characteristics of each child's temperamental organization at various points in time as well as to relate them to his intra- and extrafamilial environmental circumstances and experiences.

A. Temperamental Characteristics

Nine categories of reactivity were established by an inductive content analysis of the parental interview protocols for the infancy period in the first twenty-two children studied. A three-point scale was established for each category. The categories, their definitions, and illustrative items of behavior under each one follow (a detailed description of the parent interview protocol and of the criteria and methods for scoring temperamental characteristics has been published elsewhere [8]):

1] ACTIVITY LEVEL

This category describes the level, tempo, and frequency with which a motor component is present in the child's functioning. In scoring, all data in the protocol concerned with motility were utilized. Some examples of representative behaviors that were scored as high activity are: "He moves a great deal in his sleep"; "I can't leave him on the bed or couch because he always wriggles off"; "He kicks and splashes so in the bath that I always have to mop up the floor afterward"; "Dressing him becomes a battle, he squirms so"; "He runs around so, that whenever we come in from the park I'm exhausted"; "He crawls all over the house"; and "Whenever I try to feed him he grabs for the spoon." Examples of low activity behaviors are: "In the bath he lies quietly and doesn't kick"; "In the morning he's still in the same place he was when he fell asleep. I don't think he moves at all during the night"; and "He can turn over, but he doesn't much."

2] RHYTHMICITY

This category was based upon the degree of rhythmicity or regularity of repetitive biological functions. Information concerning rest and activity, sleeping and waking, eating and appetite, and bowel and bladder function was utilized in the scoring.

A child's sleep-wake cycle was considered to be regular if he fell asleep at approximately the same time each night and awoke at approximately the same time each morning. The child's functioning was considered to be irregular if there was a marked difference in the time of retiring and arising from day to day.

Information concerning the rest and activity periods of the child was derived from the protocol data on napping behavior. The child was scored as regular if he napped for the same length of time each day, and irregular if no discernible time pattern of function was established.

Eating and appetite behavior was scored as regular if the protocol reported that the child demanded or accepted food readily at the same time each day and consumed approximately the same amount of food on corresponding diurnal occasions. The child was scored as irregular if his intake fluctuated widely on different days, or if he tended to eat at times which differed widely from day to day.

Bowel function was scored as regular if the protocol indicated that the number and time of evacuations were relatively constant from day to day, and irregular if the number and time were not readily predictable.

In all of these areas, behavior was considered variable if there was evidence in the protocol that the child had established a pattern of functioning, but that there was some deviation from this pattern on occasion. This designation stands in contrast to a score of irregular, which denoted the failure to establish even a partial pattern.

3] APPROACH OR WITHDRAWAL

This category describes the child's initial reaction to any new stimulus, be it food, people, places, toys, or procedures. A few examples of initial approach responses are: "He always smiles at a stranger"; "He loves new toys and he plays with one so much he often breaks it the first thing." Withdrawal responses are illustrated by: "When I gave him his orange juice the first time he made a face. He didn't cry but he didn't suck it as eagerly as he does milk"; "Whenever he sees a stranger he cries"; "When we went to the doctor's for the first time he started to cry in the waiting room and didn't stop until we got home again"; and "It takes him a long time to warm up to a new toy. He pushes it away and plays with something more familiar."

4] ADAPTABILITY

When considering adaptability, one is of necessity concerned with the sequential course of responses a child makes to new or altered situations. In contrast to the previous category, it is not with the initial response that one is concerned. Rather, emphasis is on the ease or difficulty with which the initial pattern of response can be modified in the direction desired by the parents or others. Examples of adaptive behavior may be found in the following excerpts from parental interviews: "He used to spit out cereal whenever I gave it to him, but now he takes it fairly well, although still not as well as fruit"; "Now when we go to the doctor's he doesn't start to cry till we undress him, and he even stops then if he can hold a toy"; "At first he used to hold himself perfectly stiff in the bath, but now he kicks a little and pats the water with his hand"; and "Every day for a week he'd go over to this stuffed lion someone gave him and say, 'I don't like it,' but today he started playing with it and now you'd think it was his best friend."

Nonadaptive behavior can be illustrated by the following examples: "During the summer she used to nap in her carriage outside, and now that it's cold I've tried to put her in the crib, but she screams so I have to take her out and wheel her up and down the hall before she falls asleep"; "Every time he sees the scissors he starts to scream and pull his hand away, so now I cut his nails when he's sleeping"; "Whenever I put his snowsuit and hat on he screams and struggles, and he doesn't stop crying till we're outside"; and "He doesn't like eggs and makes a face and turns his head away no matter how I cook them."

5] INTENSITY OF REACTION

In this category interest is directed to the energy content of the response, irrespective of its direction. A negative response may be as intense or as mild as a positive one. Scorable items for this category were provided by descriptions of behavior occurring in relation to

external stimuli, to preelimination straining, to hunger, to repletion, to new foods, to attempts to control, to restraint, to diapering and dressing, to the bath, and to play and social contacts.

Examples of intense reactions are the following: "He cries loud and long whenever the sun shines in his eyes"; "Whenever she hears music she begins to laugh loudly and to jump up and down in time to it"; "When he is hungry he starts to cry, and this builds up to a scream, and we can't distract him by holding or playing with him"; "When she is full she spits the food out of her mouth and knocks the spoon away"; "The first time we gave him cereal he spit it out and started to cry"; "If we tell him 'no' he starts to cry"; "Dressing is such a problem, he wriggles around so, and when I hold him so that he can't move, he screams"; and "She loves her bath so, that as soon as she hears the water running she tries to climb into the tub even if she's still fully dressed."

Examples of mild responses are: "He squints at a bright light but doesn't cry"; "To a loud noise he jumps and startles a little, but he doesn't cry"; "If he's hungry, he starts to whimper a bit, but if you play with him he won't really cry"; "When she's had enough she turns her head away, and I know that it is time to stop"; "If he does not like a new food he just holds it in his mouth without swallowing and then lets it drool out"; "When we tell her 'no' she looks and smiles and then goes right on doing what she wants"; "Now it's a pleasure to dress him, he stands up when you tell him to, and holds still when he has to"; and "When other children take a toy away from him, he plays with something else; he doesn't try to get it back or cry."

6] THRESHOLD OF RESPONSIVENESS

This category refers to the level of extrinsic stimulation that is necessary to evoke a discernible response. The explicit form of response that occurs is irrelevant and may be of any quality, e.g., approaching or withdrawing, intense or mild. What is fundamental is the intensity of stimulus that has to be applied before a response of any kind can be elicited. The behaviors utilized were those concerning responses to sensory stimuli, environmental objects, and social contacts. We are also interested in the magnitude of difference between stimuli that must obtain before the child shows evidences of discrimination.

Examples of the types of descriptions that were scored in this category are the following: "You can shine a bright light in his eyes and he doesn't even blink, but if a door closes he startles and looks up." This would be scored as high threshold for visual and low threshold for auditory stimuli. "I can never tell if he's wet except by feeling him, but if he has a bowel movement he fusses and is cranky until I change him." The statement indicates high threshold with respect to wetness, but low threshold to the tactile complex associated with a

bowel movement. "He loves fruit, but if I put even a little cereal in with it he won't eat it at all." This was scored as a low threshold response because it demonstrated the ability to discriminate small taste or textural differences. "He doesn't pay any attention to new people; he doesn't cry, but he doesn't respond to them, either." This is an example of a high threshold in the area of social relations, as contrasted with "He laughs and smiles at a stranger, and starts to cry if they don't play with him," a response scored as low threshold. "He always cries when he sees a man wearing a hat even if it's his father" is illustrative of effective discrimination to presence of a specific item of clothing and was scored as a low threshold response. "He makes himself at home anywhere, and runs around a strange house as if it were his," was scored as high threshold, while "He notices any little change. When we got new curtains for his room he spent a whole day crawling over to the window and pulling on them," received a low threshold score.

7] QUALITY OF MOOD

This category describes the amount of pleasant, joyful, friendly behavior as contrasted with unpleasant, crying, unfriendly behavior. Consequently, statements which indicated crying and unfriendly behavior were scored as negative mood, as in the following: "Whenever we put him to bed he cries for about five or ten minutes before falling asleep"; "He cries at almost every stranger, and those that he doesn't cry at he hits"; "I've tried to teach him not to knock down little girls and sit on them in the playground, so now he knocks them down and doesn't sit on them"; and "Every time he sees food he doesn't like he starts to fuss and whine until I take it off the table." Examples of positive mood statements are: "Whenever he sees me begin to warm his bottle he begins to smile and coo"; "He loves to look out of the window. He jumps up and down and laughs"; "He always smiles at a stranger"; and "If he's not laughing and smiling I know he's getting sick."

8] DISTRACTIBILITY

This category refers to the effectiveness of extraneous environmental stimuli in interfering with, or in altering the direction of, the ongoing behavior. If the course of a child who is crawling toward an electric light plug can be altered by presenting him with a toy truck, he would be considered distractible. If such efforts to alter his behavior are unsuccessful, he would be considered nondistractible. A child who is crying because he is hungry but stops when he is picked up, is distractible, as opposed to the child who continues to cry until he is fed.

9] ATTENTION SPAN AND PERSISTENCE

This category includes two subcategories which are related. By attention span is meant the length of time a particular activity is

pursued. For example, if a two-year-old child engaged in water play poured water from one cup to another for half an hour, he would be scored as possessing a long attention span. If he engaged in this play activity for five minutes, his attention span would be considered short. The attention span can be measured with regard to self-initiated activities, such as the above example of water play, as well as to the child's participation in planned activities, such as listening to a story or listening to music. By persistence, we mean the child's maintaining of an activity in the face of obstacles to its continuation. Obstacles may be external. In the case of our child pouring water, if his mother comes along and says "no" and he continues to do it, he would be considered persistent. The obstacles may be much more directly related to the child's abilities. For example, the child who continually attempts to stand up although he always falls down would be scored as persistent, as would the child who continues to struggle with a toy he can't make perform properly without asking for help. The category, therefore, is an omnibus one which includes selectivity, persistence and, at a later age level, frustration tolerance.

Item scoring has been utilized, providing a specific item sum for each of the three points of the scale for each category. Interscorer reliability is high with 90 per cent level of agreement. To avoid contamination by halo effects, each protocol was scored for one attribute of temperament at a time, and no successive interviews of a given child were scored contiguously. A snip-analysis study found that whole protocol scoring was not significantly influenced by associated content.

All the behavioral records of each of the children have been found suitable for the scoring of the temperamental characteristics. These have included the parental interviews at each age period, the nursery school, kindergarten, and elementary school direct observations and teacher interviews, and the direct observations during the psychological test sessions at three and six years of age. The direct observations could not be scored for rhythmicity and adaptability, which measure behavioral characteristics occurring over time. Appropriate scoring criteria for the nine categories for each age period and source of data have been developed by content analyses of the first 20 records for each age or data source. Details of method and of interscorer reliability have been described elsewhere.[4]

B. Other Behavioral Characteristics of the Child

The behavioral data obtained from the school observations, teacher interviews, and observations during the standard test situations were found suitable not only for the categorization of temperament, but also for the delineation of other behavioral characteristics. These included degree of independence versus dependency, the nature of social functioning with peers and adults, play patterns and emotional expressiveness.

In addition, each test item on the Stanford-Binet test was considered to represent a concrete demand on the child for specific task performance, and the total test to represent a standard series of such demands presented in sequence. Each child's mode of response to demands for task performance was categorized by the scoring of his verbal and motor behavior during each test item of the Stanford-Binet test administered at three and six years. For each child it was possible to define the degree to which he actively engaged in the task demanded of him and the patterns of behavior exhibited when the child did not do what was demanded of him.*

C. Intellectual Functioning

The I.Q. of each child was determined at three and again at six years of age on the Stanford-Binet test, Form L. In those children for whom a satisfactory test performance was not obtained at three years, testing was repeated six months to a year later.

At both three and six years, the I.Q. scores of the group were normally distributed around a mean of 127, with a standard deviation of 12.1 at both years.

D. Parental Practices and Attitudes

Information on parental practices with and attitudes toward all the 136 children in the longitudinal study were derived from several sources.

The first source constituted the periodic interviews with the parents. During these interviews it was possible to gather systematic information on patterns of parental functioning as well as on behavioral characteristics of the child and special environmental events as they occurred within the family. In connection with any feature of the child's behavior, a sequence of questions was systematically pursued by the interviewer: What did the parent do? How did the child respond? What did the parent do with respect to the response? What did the child do subsequent to the parent's response? The data chain, therefore, contained an equal number of links which described parental practices and child behaviors. As an illustration, an extract may be presented from a parental interview which deals with the nighttime sleep behavior of a twenty-five-month-old girl:

"Isobel had begun to sleep through the night by the age of twenty-one months. Mother went to hospital one month later to deliver a baby boy. Isobel continued to sleep through night during her mother's hospitalization, but three nights after mother and baby brother came home she began to awaken once nightly and call for her mother. When

* The definition of these categories and the scoring criteria and techniques will be reported in detail in a monograph now in preparation.[5]

this happened, mother went to her, cuddled her, rocked her, and gave her a bottle. Isobel then went back to sleep. This went on, with occasional sleeping through, for about six weeks. Mother then tried to discourage this nighttime awakening by only talking to her and refusing to rock her or give her a bottle. However, the nighttime awakening continued and Isobel also began to climb out of bed before going to sleep. If her door was shut, she screamed. Whichever parent came, she wanted the other one and demanded to be taken downstairs. After a few nights of calling either parent she simply was placed back in bed by the parent who came. If door not shut, she came down or stood at top of stairs calling, 'I up.' Climbed out as many as three times. Parents became increasingly firm in insisting she stay in her room and after a few nights she quit getting up or calling immediately on being put to bed. Mother also told her that if she awoke in middle of night she could sing or talk to self but shouldn't call. When she did call during night, mother came. Isobel called several times each night. Finally, after about a week, mother spanked her one night when she had called for the fourth time. Mother told her at the same time that she wouldn't come into room even if Isobel cried. Isobel has not called at night since (for past two weeks), but has been heard talking and singing to herself during night on a number of occasions."

This data chain contains not only the consequences of the child's behavior in response to specifically defined and detailed environmental changes, but also the various child-care techniques employed by the mother in her attempts to modify the child's sleep pattern.

The second source of data was the special parental interview done when each child was three years old. These simultaneous but separate interviews of each parent-pair were focused on practices and attitudes. The practices elicited were those involved in general planning for the child and in the details of his care and management. The range of attitudes probed was broad and extended from the parents' views on specifics of child rearing, to their positions on sex role, marriage, parental role, and their aspirations and expectations for the future of the child and family. Supplementally, the PARI was administered but was found not to provide a basis for differentiating idiosyncratic parental attitudes within the group.*

Inductive analyses of the data obtained from these two sources provided the categories and ratings by which parental practices and attitudes were assessed. These categories correspond, in the main, to those utilized by many other investigators and clinicians. They include such items as permissiveness, consistency, strictness of discipline, approval of child and child's interests, protectiveness to child, liking for

* This finding is in agreement with the conclusions of other workers who have utilized the PARI.[6]

child, toleration of child's deviation, expectations for the child, attitude toward spouse, and agreement between parents.

Several general principles have been followed in the rating of these categories: 1] The assessment of attitudes and practices has been based on the direct statements by parents of their feelings and attitudes and on their detailed reports of behavior and practices. No attempt has been made to evaluate systematically any presumed underlying subjective states, due to the absence of reliable criteria for making such inferences. 2] Global judgments have been avoided, and ratings have been based on attitudes and practices in specific areas, and subcategory ratings were established to implement this approach. 3] Global psychopathological labels such as "rejecting," "hostile," "anxious," etc. have been avoided. 4] The ratings have been based on the parents' responses to the specific child, rather than on their statements of abstract or general attitudes.

A parent may state that he has no expectations of high educational status from his child and is concerned only that the youngster go as far as his interests take him. This is an expressed attitude. However, if in regular discussions with the child, the parent points out that it is unlikely that anyone with the youngster's intelligence would be happy in his adult life unless he gained the vocational possibilities that come with a graduate level of education, there is evidence of an implied attitude which contradicts his expressed attitude. If, on the other hand, the father regularly gives priority to outings and athletics in his activities with the youngster and shows little concern about the child's grades, there would be evidence that his expressed attitude is consistent with the attitude inferred from his behavior.

E. Other Data

An evaluation of the home environment of each family has been made, including type of dwelling, degree of crowding, type and amount of help in the care of the child, affluence of the family, and degree of financial stress, if any.

Special environmental circumstances, such as the birth of a younger child, the mother's return to work, divorce, death in the family, illnesses, accidents, and hospitalization of parent or child, have been identified in each case and the sequence of the child's behavioral responses before, during, and after each such event tabulated. A similar tabulation of each child's responses to weaning and toilet training has also been undertaken.

The presence of any significant handicaps or deviations, such as bowel sphincter dysfunction, neurological damage, intellectual subnormality, or deficient neuromuscular coordination, has been identified and the extent and severity defined. On the positive side, special talents, skills, or abilities have been recorded.

With the occurrence of each special environmental circumstance, handicap, or special talent in the child, the parental attitudes and behavior, as well as those of the child, have been identified.

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