

SOME ECOLOGICAL VARIABLES OF COMMUNITY ADJUSTMENT
IN A GROUP
OF FACIALLY DISFIGURED BURNED CHILDREN

A Dissertation

Presented to

the Faculty of the Department of Psychology

University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

By

Richard C. Schmitt

May, 1971

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ABSTRACT

This is a study of the community adjustment of children with facial disfigurement from severe burns, utilizing daily records of the children's activities, away from home and school, over a continuous 4-week period. The sample included a group of eight facially disfigured burned children, and a matched, nondisfigured control group. Similarities and differences were explored between the disfigured and nondisfigured groups along nine descriptive variables of behavior setting analysis.

The major findings were:

- 1.) For all the variables, there were no more statistically significant differences at the .05 level than would be expected by chance. The application of a strict statistical interpretation to these data is that, along the dimensions studied, there is no basic quantitative difference in the community adjustment of the two contrasted groups.
- 2.) Yet, the nine variables resulted in 53 comparisons, of which 36 were significant between the .05 and .20 level, and distributed in an internally consistent pattern.
- 3.) This pattern of near differences indicates:
 - a.) A numerical advantage in frequency of experience (entries into settings) for the nondisfigured group in formal settings, which were farther from home, but

for the disfigured group in informal settings, which tend to be within the neighborhood.

b.) Differentiated experience (entered settings, varieties, and settings per variety) demonstrates a numerical advantage to the nondisfigured group in all the related analyses, with the exception of settings per variety.

c.) Reiterativeness of experience (entries per setting) shows a numerical advantage for the nondisfigured group in formal settings, and a statistically significant advantage for the disfigured group in informal settings.

d.) Measures encompassing temporal dimensions (total hours spent, hours per setting) reveal a numerical advantage in total hours for the nondisfigured group in formal settings, but for the disfigured group in informal settings. The hours spent per setting yield a numerical advantage for the disfigured group in both formal and informal settings.

e.) The measures for level of participation (penetrations) and for social life (companions) do not portray a definite pattern, with the exception that the disfigured group demonstrated a somewhat greater tendency to have an escort in formal settings.

The basic interpretation of this general pattern is that the nondisfigured group may be more venturesome, but the

disfigured group compensates for less breadth of experience by maximizing depth of experience. Thus, a balancing effect is suggested.

4.) A supplementary analysis, which focused upon community size, disfigurement, and their interaction for three of the measures, also revealed that community size may be an important factor influencing the activities of children irrespective of disfigurement.

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CHAPTER I

INTRODUCTION

The goals of the present study were (a) to determine the effect of facial disfigurement, resulting from severe burns, on community adjustment in children; and (b) to replicate and expand a behavior setting survey methodology on which this study is based.

A severe burn is a thermal insult whose immediate consequence is massive physiological imbalance and whose long term consequence is permanent scarring. An initial hospitalization period of several weeks is typically followed by several more hospitalizations involving corrective surgery for functional impairment and for cosmetic restoration. Clearly, a serious burn injury drastically alters the individual's internal processes and external appearance.

Approximately two million activity-restricting burn injuries occur annually in the United States, according to data from the National Health Survey for the years 1957-1961. Roughly one-third of all burn injuries involve children (Iskrant & Joliet, 1968). Burn injuries are the leading cause of death from nontransportation accidents in the age group 1-4 and the second leading cause in age group 5-14 (Iskrant, 1967). Incidence and mortality figures, however, cannot begin to reveal the entire scope of damage

resulting from burns. Jensen (1959) points out that for each mortality, there are many nonfatal but serious burns which result in disfigurement, scarring, and in enormous economic loss.

The goal of treating severely burned patients is generally formulated in terms of survival (Goldman, 1965). There appears to be a growing recognition that survival should not be considered the only criterion of successful treatment; assessment of readaptation to social life should also be made (Arturson & Ponten, 1962). Others, such as Remensnyder (1968), pose the problem more strongly: "We return visibly damaged products to society - what becomes of them?" [p.1].

The adjustment of the child with burn scars on and around the face would seem to be of special theoretical and practical significance. Yet, there is little information regarding the social and behavioral characteristics of the burned child following treatment. One reason for this has probably been the difficulty of locating seriously burned children who survived. The intent of this study is to assess the community adjustment of a group of primary school-age children with facial disfigurement who are at least 1 year beyond treatment for the acute burn. An effort is made to answer certain key questions about the social-behavioral aftermath of facial burns, i.e., the activity range and social life of these children. The method derives

from the techniques of ecological psychology as developed by Wright (1969a; 1969b).

The subjects for this study were patients of the Shriner's Burns Institute, Galveston Unit. At the time of the study, all were residing in their communities while awaiting elective reconstructive surgery. The Institute is a specialized treatment facility which accepts children who have either acute burns or residual scar deformity secondary to burns. It is one of 19 hospitals operated by the Shriners of North America. The Institute first began admitting patients in April, 1966. The children have come from a broad geographical area, including almost every state in the nation, as well as from Canada, Mexico, and Guatemala.

Any child who is 14 years of age or under may be admitted to the Institute and receive care without charge. The procedure for admitting a burned child involves prior agreement between the parents and the local physician, who in turn contact a local Shriner who agrees to sponsor the child. To date, more than 800 children have been admitted to the Galveston Unit.

As the psychological consultant to the Galveston Unit since March, 1969, this writer has had many opportunities for direct involvement with the children, families, and staff at the Institute. Thus, the research needs and special problems deriving from burns have a special personal appeal.

A frequently-heard question, voiced by parents of burned children and staff alike is, "Can these children lead normal lives?"

The philosophic basis for this study is that much of life consists of going places, doing things, and being with people. Thus, the specific question becomes the extent to which "life," in this sense, is altered for children with facial disfigurement resulting from burn injury.

CHAPTER II

REVIEW OF THE LITERATURE

This chapter is a review of the literature pertinent to the psychology of burns in children, with special emphasis upon the effects of facial disfigurement. It contains sections on the psychological antecedents, the hospital experience, and the reactions following treatment. Additional sections are included on related literature and on the relationship of facial disfigurement to conflict and behavior.

Psychological Antecedents of Burns in Children

Passage through a burn crisis follows a fairly regular sequence. The events which predate the burn accident have been found to reflect hazards within the physical environment (Colebrook, 1951), as well as social and psychological factors. Cope (1968) notes that each family has a "fail-safe" system that obviously fails when a child is burned. Both child and parents are presumed to spin a causal web that fixes the events and circumstances leading to the burn experience. The available literature regarding the antecedents of accidents suggests that three general types of burned children can be distinguished: (a) the child of chance, (b) the impulsive child, and (c) the child of mentally disturbed parents.

No documentation is necessary to make clear that some children are burned as a result of chance factors which have little or nothing to do with their behavior or that of their caretakers. Though this fact does not diminish the contention that most burns are preventable (Hopkins, 1962), some children are burned because they are in the wrong place at the wrong time. These are the children of chance.

The impulsive child is defined here as one who characteristically acts on the spur of the moment and who typically demonstrates poor judgment. Sobel (1968), in a study of accidental poisonings, suggested that the relationship between the hazard and the actual ingestion of toxic substance may lie more in the realm of the child's self control than in the quality of protection afforded him by his environment. Similarly, another report concerning a group of boys treated for accidental poisoning revealed that one of four could be classified as hyperactive on the basis of interviews with parents and teachers (Stewart, 1969). A pioneering study of emotional problems in burned children (Long & Cope, 1961) found, on the basis of mother interviews, that acting-out behaviors were present in nine of their total of 19 children.

The child of mentally disturbed parents is generally presented as one whose parents facilitate the occurrence of the burn accident as a result of their inner conflict. No researcher has yet suggested that parents intentionally

burn their children. Belief in determinism abounds, however, with the parent's unconscious considered to be the villain. Representative of this view is a study by Seligman (1970), who interviewed 23 families and 259 children at the Shriners Burns Institute in Cincinnati, Ohio. None of the parents of children was considered to be psychotic. The a priori assumption was made, however, that there exists a burn-prone child who is the result of a certain kind of parent-child relationship. The evidence for this assumption was based on the finding that, of the 23 families, 14 of the parents had lost a mother or father in childhood through death. The adjustment of mourning children, in this instance the parents of burned children, was considered to be the essential problem. The study by Long and Cope (1961), however, indicated more overt mental disturbance of burned children's parents. They noted that, in eight of the 19 cases, there was either an absent parent, a broken home, or evidence of serious maladjustment in one or both parents. This study, which was based upon a relatively small sample, is clearly not in accordance with the other studies in the portrayal of burned children's parents as overtly mentally disturbed.

It appears that most behavioral studies of burned children are undertaken by researchers of psychoanalytic persuasion, with a correspondingly heavy emphasis on unconscious motivational determinants. This view presumes that burn

accidents, like slips of the tongue, reflect covert psychodynamic processes. For example, a British study by Martin (1970) compared 50 burned children with a control group of 41 healthy children matched for age, sex, and social class. The major findings relate to conflict among the parents of the burned children, particularly the mothers. Preoccupation with some unresolved problem at the time of the accident, usually related to health or economic matters, was attributed to 44 of the mothers. Other findings were that (a) burned children were more likely to be the products of unwanted pregnancies, (b) their parents had more medical problems, and (c) their parents had more marital problems. Not surprisingly, mothers of burned children more often found their children a source of worry. It was concluded that parents of burned children seem to have an unconscious wish to injure their child, but differing from parents of battered children in the display of strong guilt and in the tendency of burn injuries to be nonrecurring.

Galdston's (1968) review of 40 children who sustained severe burns emphasized indulgent child rearing practices and a tendency to idealize the children by portraying them as having wisdom and maturity beyond their years. In this view, the burned child emerges as one who receives his burn by engaging in tasks inappropriate to his age level, during moments when the normally attentive parent is diverted or preoccupied.

The assertions from these studies imply that burned children's parents are mentally disturbed, and the impression is that these authors have extended themselves considerably to affirm psychoanalytic determinism in the absence of clear observational or clinical evidence of parental maladjustment. To accept this literature is to hold that no burn injury is truly accidental, i.e., the phenomenon of the burned child becoming part of the psychopathology of everyday life.

These types of burned children are not intended to be mutually exclusive. Certainly, an impulsive child may be burned as a result of chance factors, to cite only one exception. It may well be, however, that factors within a child and within his social environment predispose him to becoming burned and that high-risk populations can be distinguished. One ultimate goal of research in this area should be early detection of the burn-prone children, and of environments conducive to burn injury.

Hospital Experience of the Burned Child

Bernstein, Sanger, and Fras (1968) differentiate three phases of treatment in the acutely burned child; early, middle, and late. Issues of survival predominate in the early treatment phase. The medical staff is overwhelmingly concerned with the care of shock, fluid replacement, and procedures like tracheotomy and transfusion. The desire to rescue children from their suffering sometimes leads to

overindulgence. Implicit in the description of the middle treatment phase, when skin grafting procedures begin, is increasing responsiveness and lucidity on the part of the child. Obnoxious behavior, which earlier is tolerated in the interest of survival, begins to cause irritation in the caretakers. Correspondingly, it is assumed that this is the period when most burned children begin to manifest depression. The late treatment phase is when healing of the remaining open areas is awaited and the child is urged to move and to exercise his joints. This phase is characterized by impatience for discharge by the child and his family, on the one hand, while the child struggles to keep all the indulgences and services accruing to the "critically ill patient", on the other hand. Problems of independence-dependence predominate as the child returns to mobility.

Efforts to assess the hospital experience of the burned child have been reported by a psychiatric group at the burn treatment facilities affiliated with Harvard Medical School. This group has studied reactions to trauma, surgical procedures, and death for over 25 years (Cobb & Lindeman, 1943). Several conclusions regarding the hospital experience of the acutely burned child are justified on the basis of these studies.

First, burned children tend to be difficult to manage. Bernstein, Sanger, and Fras (1968) note that no other area of nursing appears to require the staff to inflict so much

pain on children in the course of treatment. This provides a realistic basis for the contention that morale problems and interdisciplinary conflict are common. Long and Cope (1961) suggest that the children's emotional responses are aggravated by misinterpretation of the care procedures. In the child's mind, a triple link of pain, punishment, and punishers is formed, and the child may become uncommunicative and withdrawn. When this impasse is not resolved, care of and interest in the child lags among professional personnel.

Second, deeper emotional reactions antagonistic to the treatment process are common and elements of regression and depression are the most frequently reported (e.g., Long & Cope, 1961).

Finally, the nature of the disruptive emotional reactions appears to relate to several factors, one of which is the child's preburn adjustment (Long & Cope, 1961). Specifically, maladjustment apparent in the child's behavior before the burn accident seems to carry through, and seems to be aggravated by, the period of hospitalization. Another relevant factor may be that older children who precipitate their own burns are particularly difficult (Galdston, 1968).

The emotional reactions of both parents and children to burn injury were explored in another British study by Martin (1970), involving 48 children. As in other reports of hospitalized children (Bowlby, 1951; Robertson, 1958), the

children's behavior was connected to disturbances in mothering behavior resulting from the treatment situation, and to the way the mother assigned responsibility for the injury. Consistent with previous studies, the most severe emotional reactions were conceptualized on the basis of detachment at admission, and the sequence of protest - despair - detachment after admission. The mother's reactions were seen as paralleling those of their children, with the most severe reactions occurring in children under 2 years of age, and in mothers whose mothering behavior was most dislocated by the injury. Disturbed behavior was evidenced by 40 of the 48 children 3 months following the injury, and by 23 of the children at the end of the year. Aggressive reactions occurred in children whose mothers blamed themselves for the injury, and among children whose families suffered major additional stress around the time of the accident.

A rather negative picture emerges from this research on the acutely burned child. In global terms, it is that the burn accident is conceived in familial psychodynamic conflict, that the treatment process is largely agonizing, and that personal misery and unfavorable social response typically follow in the aftermath of hospital release. To complicate the picture further, it is misleading to speak of problems of the burned child without considering the plight of those who have direct involvement with him, including family and staff. This larger social perspective has been

captured for children having polio and their families (Davis, 1963), but not for burn victims.

The Burned Child Following Hospitalization

A British study (Woodward, 1959; Woodward and Jackson, 1960) focused on the relation between emotional reactions of burned children following treatment, preillness functioning, and family stability. Subjects were 98 children under 15 years of age, with burns involving 10 percent or less of the body, and who were 2 to 5 years beyond treatment for the acute burn injury. Data were collected by interviews with mothers and reports from the children's school teachers. The incidence of emotional disturbance was found to be over 80 percent in the sample, and was manifested by fears and anxieties, difficulties of management, lethargy, aggressiveness, psychosomatic disorders of sleeping and eating, enuresis, and stammering. Two control groups of 608 siblings of burned children and a matched group of 50 children yielded incidence figures of 7 and 14 percent, respectively. Sixty percent of the mothers reported upset which extended beyond the acute treatment phase, with 16 percent of them having experienced "nervous breakdowns" which required medical treatment. The rate of preillness disturbance in the children was assessed at 17 percent, suggesting that their high rate of emotional disturbance was reactive to the burn accident and its consequences. Therapeutic help by hospital social workers, which focused

primarily on the mother both during and after the child's hospitalization, reduced the rate of the children's disturbance from 80 to 20 percent. One must wonder if this decrement reflects therapeutic skill, release from the hospital milieu, or questionable research methodology.

In a group of intensive case studies, Watson and Johnson (1958) focused upon acquired physical disfigurement in children. An interview with each child and with his parents was undertaken with five cases, two of which included burns. Both burn cases had sought psychotherapeutic assistance which involved the child and his family. The findings emphasized that the child will imitate parental attitudes toward his body and its parts. Other salient findings were that (a) disruption of the body surface temporarily disrupts personality integration; (b) self-esteem prior to the injury is related to the degree of anxiety afterwards; (c) greater awareness of the physical self can decrease anxiety; and (d) projection is a frequently employed defense mechanism against anxiety in the disfigured child. These conclusions, which deal with highly complex issues, might well be labeled as speculation when one considers the small sample on which they were based.

A circumscribed study dealing specifically with psychiatric sequelae of burns in children who were at least 1-year beyond treatment was undertaken by Vigliano, Hart, and Singer (1964). The subjects were 10 children varying in age

from 6 to 16 who were not mentally retarded or functionally handicapped, and who lived with their natural mothers. The method consisted of two individual interviews with each mother and two with each child. Psychological testing of the children and their mothers was confined to drawings of the scene of the burn accident, and included self drawings by the children. The mothers were asked to complete an historical questionnaire. The child data were formulated in terms of attitudes. Interpersonal attitudes were considered to reflect aloofness in combination with manifestations of clinical anxiety. Test results revealed perceptions of the world as overpowering and potentially destructive, with many expressions of independence-dependence conflict. Attitudes toward the burn were characterized by denial and reluctance to talk about the present reality of the disfigurement. Self attitudes included perception of the body as immature, inadequate, and weak. The mothers, with only two exceptions, were described as depressed. Guilt feelings, marital unhappiness, and divorce were other problems they experienced following the burn accident. It was concluded that burn trauma has long-lasting and wide-ranging effects. Psychological disturbance was assessed in nine of the children and in eight of the mothers, although none had sought professional assistance.

These various authors couch the problems of burned or disfigured children in markedly different frameworks and

terminologies. If one accepts the conclusion that burned children tend to have problems, we must ask whether these problems predate the burn accident, or whether they derive from the length and quality of the hospital experience, social response to the child, or some combination of these factors. This problem does not appear to be unique to burns, but is common to the area of disability in general. Cruickshank (1963) suggests that, while many writers have developed theories relating physical disability to social and emotional adjustment, there has been little research to support these positions. He adds that "no attempt has been made to interpret theory in terms of degree of disability, length of period of disability in the development of the individual, congenital disability versus adventitious disabilities, and other pertinent factors" [p.312].

Variations in circumstances predating and leading to the burn, the extent and area of burn, the nature of hospital experience, and the subsequent adjustment render it highly difficult to find two burned children who are similar in all these respects. Certainly no single study could hope to control for all these diverse variables, and any reference to "the burned child" should be made advisedly. Nevertheless, some conventions can be adopted regarding the time reference of burn injuries and the kind of burned child one wishes to study. The present study involves a time reference following discharge for acute burn treatment, and

concerns children who have facial disfigurement.

Why the burned child having facial disfigurement should be a particular focus for study can be justified on several levels. On the medical level, Lewin (1969) reports that the face is involved in about one-third of children with severe, generalized burns, and he points out the inevitability of facial disfigurement in such cases despite the best medical care. On the social level, it is apparent that the face cannot be concealed during interaction and that it is an area of the body towards which other people orient (Goldberg, Kiesler, and Collins, 1969). Elsewhere, the importance of the face on a cultural level has been emphasized by MacGregor, Abel, Bryt, Lauer, and Weissman (1953), who point out that "the premium placed upon facial beauty in the United States today, its importance for jobs, marriage, and 'success' in our culture, has intensified the impact of facial deformity upon the person who is so afflicted" [p. 3].

A final reason why facially disfigured persons need further study is that little systematic psychological inquiry has been attempted. Major texts in the area of the psychology of disability, including those by Cruickshank (1963), Trapp and Himmelstein (1962), and Wright (1960), make no mention of facial disfigurement. The text by Barker, Wright, Meyerson, and Gonick (1953), suggests that "there appears to be a general recognition that severe cosmetic defects have serious psychological consequences" [p. 2],

but the matter is pursued no further.

Related Literature

Regardless of his past experience, the facially disfigured burned child is stigmatized according to the notions of Goffman (1963). "Stigma" is a characteristic that makes a person not only different from others, but also less desirable. The presence of facial scars renders the person "discredited" because facial scars are evident and immediately perceivable by others.

That the facially disfigured burned child is devalued by his peers is supported by Richardson, Hastorf, Goodman, and Dornbusch (1961). These investigators asked a varied group of 10 and 11 year old children for a preferential ranking of pictures of children with various disabilities. The subjects were 640 boys and girls, with and without physical handicaps, and from diverse social, cultural, and ethnic backgrounds. The children were studied in various settings, including public schools and summer camps. The stimulus drawings were of a child with no physical handicap (A); a child with crutches and a brace on the left leg (L); a child sitting in a wheel chair with a blanket covering both legs (W); a child with the left hand missing (H); a child with facial disfigurement on the left side of the mouth (F); and an obese child (O).

It might be expected that preadolescent children in the 10-11 year age group would assign lower preferential

ranks to those disabilities which were functionally rather than socially handicapping, since heterosexual interests and emphasis upon social graces do not characterize this age group. Based on an earlier pilot study, however, the authors were led to hypothesize that the rank order of preference would be uniform for the whole group and for comparisons based on differences within the group. The preferential sequence was postulated to be: A, followed in descending order by L, W, H, F, and O. Both hypotheses were confirmed. Rankings were not affected by the sex of the rater, presence of a physical handicap in the respondent, socioeconomic status, ethnic group, urban-rural differences, or setting of the interview. Despite the stability of the rankings, there was a tendency for girls to emphasize social handicaps relatively more than boys. These findings, remarkable for their consistency, are also remarkable in that there could be found "no evidence that the pattern of preferences was explicitly taught to children in our culture" [p. 242].

This study substantiates the importance of the face as a stimulus for social evaluation. Even though the obese child was the least preferred, it is apparent that obesity also affects facial appearance to some degree. However, while this study affirms that the facially disfigured child is devalued, no conclusions can be drawn regarding the qualitative consequences this imposes on his everyday life.

The most comprehensive study undertaken regarding the psychosocial aspects of facial disfigurement is by MacGregor, Abel, Mryt, Lauer, and Weissman (1953). These authors attempted a clinical investigation with primary emphasis on the effects of plastic surgery on adjustment. The interdisciplinary investigative group included a plastic surgeon, a psychiatrist, a sociologist, a home investigator with anthropological training, and two clinical psychologists. Subjects for the study were applicants for elective facial reconstructive surgery in New York City, varying in cultural background, age, and type of facial deformity. Each of the 74 subjects was seen individually by a minimum of two team members in interviews, and the number of hours spent with each subject ranged from 2 to 30. Extensive family histories and psychological testing at various intervals during the 2-1/2 year time span were collected. The subjects were grouped in four categories according to degree of deformity: slight, moderate, marked, and gross. These groupings were based on deviance of appearance from normal and the resulting negative reaction which their appearance elicited from others. For purposes of clinical comparisons, the slight and moderate groups were combined as Group A (38 patients), while the marked and gross were combined as Group B (36 patients). A wide age range was involved, with six males and seven females below the age of 15. The largest group (20) was in the 21-30 age group. These groupings included subjects with

both congenital and acquired facial deformities.

The authors' findings place special emphasis upon the limitation that facial deformity imposes on the individual in terms of his activity and companion regimen. They suggest that one of the basic difficulties associated with facial deformity evolves from social perception——both how a person looks to others and the impression he gives because of his looks. Antipathies toward the facially deformed person, which may be irrational, frequently serve as barriers to the development of sympathetic social interaction. The authors state that: "Opportunities available to the non-disfigured are often denied them; social participation, matters of employment, prestige, role and status, interpersonal relationships, personality organization, and a variety of cultural activities are affected or altered in some way" [p. 64].

The social responses evoked by facial deformities are seen as twofold. First, facial deformity tends to elicit negative emotional response in terms of revulsion, fear, or contempt. Second, a prevalence of stereotyping is frequent, with subnormal intelligence, low social and economic status, and moral turpitude attributed to the facially deformed person. Negative social responses to the facially deformed were characteristic of both adults and children, with children from the age of about 5 or 6 perceiving the different appearance of this group.

The extent and quality of social participation by the facially deformed child was found to be related to maternal behavior. Five main maternal patterns were differentiated, which included avoidance, hiding, denying, undoing, and normal. The first four types were seen as having neurotic characteristics. Since the children's behavior tended to conform to parental characteristics and expectations, these children, by and large, remained friendless. It was considered that their social isolation principally reflected maternal sheltering from peer antagonists.

The authors conclude that, as a group, the severely disfigured complained less bitterly than the mildly disfigured, although both groups felt that their deformity interfered with the ability and opportunity to make satisfactory adjustments. That the severely disfigured persons complained less was attributed to their being more passive or repressed than the less disfigured group. The authors also stress the uniqueness of each individual person. They state that "whether he is mildly or severely disfigured, whether he has congenital absence of one ear or a scar from a burn, each patient has his own characteristic ways of adjusting to his deformity and to his family, friends, and acquaintances" [p. 209]. The authors also felt mildly optimistic that therapeutic help can facilitate the adjustment of the facially deformed child and of his parents in relation to him. Finally, it was suggested that greater dissemination of

information to the general public regarding facial deformity could ease the pressures to which facially deformed persons are exposed.

The Relationship of Facial Disfigurement to Conflict and Behavior

The foregoing studies make clear that facial disfigurement is a stigmatizing phenomenon, immediately perceivable, and resulting in the devaluation of the afflicted person (Goffman, 1963). Although no evidence suggests that parents explicitly teach their children to devalue physical deviates, children uniformly seem to do this, and the face may be a primary focus for assessment of social desirability (Richardson, Hastorf, Goodman & Dornbusch, 1961). Watson and Johnson (1958) propose that when significant others exhibit negative attitudes and reactions toward the facially disfigured child, he will adopt these attitudes and reactions toward himself. The disfigured child whose face consistently evokes unfavorable social response may find it difficult to tolerate any close relationships with others having the same characteristic, as has been reported in certain disfigured adults (Goffman, 1963). This would be in line with the notion of Kurt Lewin that the minority culture assimilates the values of the majority culture.

The conclusions of authors such as Goffman (1963) and MacGregor, Abel, Bryt, Lauer, and Weissman (1953) make clear that unfavorable social response may impede the facially

disfigured person's participation in his preferred activity regimen and network of companions. The extent to which the person is able to participate in the business of everyday life, despite being devalued, is, in a sense, a measure of his adjustment to life. It is generally accepted in psychology that adjustment in childhood is strongly related to adjustment in later life. As a result, it would seem desirable to describe the adjustment of a group of facially disfigured children in terms of their naturally occurring activity regimen and network of companions. This would help clarify how the quality of these children's lives is affected by their deformity.

A more compelling need for this research is the potential educational value it could serve. Both the disfigured children themselves and their parents deserve to know the specific areas of life experience which may or may not be affected by the presence of facial disfigurement. Treatment personnel within the hospital also need this information in order to provide counsel and advice on a more substantial basis than mere intuitive speculation. It is hoped that this study may be a beginning in serving this purpose.

CHAPTER III

STATEMENT OF QUESTIONS, METHODS, AND PROCEDURES

The primary purpose of the present research is to assess the effects of facial disfigurement on community adjustment. Normally, the phase of middle childhood in our culture is characterized by school attendance and by living in a home. This study asks about the other outer reaches of children as they venture beyond the limits of home and school and into other parts of their community. What other physical and social resources do they explore? In essence, what is life like for facially disfigured children compared with children whose facial appearance is unaltered? The study explores a methodology of ecological psychology which enables one possible definition of adjustment, namely, differences between the behavior settings traversed in the disfigured children's behavior stream from those of a matched, nondisfigured group. The present chapter contains some theoretical considerations underlying the study of disability and methodology in ecological psychology, the questions which were posed, a description of the subject groups, and the procedures for collecting, organizing, coding, and analyzing the data.

Theoretical Antecedents

A central concern underlying the study of any severe

illness should be the changes in the quality of the person's life following the illness. Where altered physique is an outcome of the illness, Barker, Wright, Meyerson, and Gonick (1953) enumerate consequences which include impaired physical function and diminished social stimulus value. Alternatively, these consequences are construed as having important implications for the body as a tool and as producing effects upon self and others. The same essential point is made by Hamilton (1950), who differentiates disability from handicap. He views the former as an impairment having an objective or medical aspect, while the latter is seen as an interference in social behavior and psychological adjustment.

It is a personal observation that, in most cases of severe burn injury, a concerted treatment program can prevent or correct impaired physical function. However, there is no medical technology which can remove the scar formation, which is an inevitable outcome of severe burn injury. The severely burned person, therefore, can generally expect an altered physique, but with the retention of sufficient physical function to deal with most life situations which require mobility and dexterity. While social and psychological difficulties may be a consequence of severe burn injury, physical limitation is not generally likely, particularly if the person is treated in a specialized facility for burn treatment.

The suggestion has been made that facially disfigured burned children may be handicapped in Hamilton's terms. Thus, the central issue becomes a more precise specification of the social and psychological consequences of the alteration of physique. This presents a problem concerning social-behavioral adjustment within a handicapped population. One possible approach has been recorded by an Institute on Psychology and Rehabilitation (Wright, 1959), which stressed the necessity of dealing with "reality factors", those difficulties within the actual social and physical environment with which a disabled person must cope. Similarly, Barker, Wright, Meyerson, and Gonick (1953) indicate a need for approaches aimed at behavioral description. Preliminary investigations with a small number of children having impairments in mobility have been previously reported (Schoggen, 1963; Fawl, 1963). Contrary to many speculations, the picture that emerges from these investigations is one of similarity rather than difference between the records of disabled and nondisabled children.

Studies which attempt direct description of child behavior in naturalistic settings frequently fall within the framework of ecological psychology (Barker, 1968).

Ecological psychology is concerned with both molecular and molar behavior, and with both the psychological environment (the life-space in Kurt Lewis's terms; the world as a particular person perceives and is otherwise affected by it) and with the ecological environment (the objective, pre-perceptual context of behavior; the real-life settings within which people behave) [p. 1].

The study by Schoggen (1963) is worthy of more detailed consideration as an illustration of an ecological investigation which, similar to the present study, compared a group of five orthopedically disabled children with a group of 12 nondisabled children. The data consisted of full 1-day records of the children's behavior, both in and away from the home. The focus was upon a particular kind of interaction between the child and others encountered in his naturally occurring environment. A method for unitizing environmental action was devised and labeled as an environmental force unit (EFU). The EFU is a goal-directed interaction occurring between the child and an environmental agent, the end-state of which is recognized by the child.

The EFU variables analyzed included (a) the frequency of EFU, (b) their duration, (c) the EFU with agents of different roles, (d) initiation of EFU by subject and various agents, (e) the EFU with conflict between subject and agent, and (f) various techniques of environmental agents. The data did not reveal any significant differences between the records of disabled and nondisabled children on any of the variables. Individual records differed widely, and the variations were most often attributed to differences in age and personality in the children. Schoggen's conclusion is that disabled children are not necessarily treated and otherwise dealt with differently by others in their natural environment.

Another unit which has received attention is the behavior episode (Barker & Wright, 1955; Wright, 1967).

This unit is aimed at the description of the molar behavior and situation of individuals. The data-gathering requires the presence of an observer in the particular ongoing situation. If one wishes to study a group whose members are geographically separated, this method immediately presents immense difficulty in terms of obtaining data. Barker and Wright, however, note a more serious objection. They profess, "the truth is that we soon became overwhelmed with individual behavior. We estimated that the 119 children of Midwest engaged in about 100 thousand episodes of behavior each day..."[p. 7].

Wright (1969a) points out that molar behavior consists of what a person does in relating himself to parts of the world that ordinarily are perceived. These "parts" are intimately related to the immediate, extraindividual environmental context, i.e., to the community in which the person functions. They include the totality of physical and social resources for the molar behavior of individual persons. This manifold is extraindividual in that it is precisely the same for all the community's inhabitants, and in the sense that it generally survives continuous replacements of particular individuals and change in their characteristics and behavior. Every ecological domain, which means every naturally bounded and inhabited place, has its extraindividual

medium for behavior. Further, a connection exists between individual behavior and the phenomena of a community medium, one aspect of which are behavior settings.

A methodology has been evolved by Wright (1969b) which enables the investigator to obtain a record of the naturally occurring behavior settings in the lives of children. His basic interest was in assessing the impact of community size on the activity range abroad of primary school age children. "Abroad" means while the child was not at home or school. An activity was very simply defined as a visit to a behavior setting. While Wright's substantive findings are not directly applicable to the purpose of the present study, it is noteworthy that he found community size to be highly important in relation to the activity range of children.

A behavior setting is, according to Wright (1969a):

...a naturally bounded physical and social assembly together with an attached standing pattern of human behavior. The assembly has distinguishing attributes of place, time, things, and inhabitants that both surround and support the behavior pattern. The pattern, on its side, is extra-individual inasmuch as it stays essentially the same while different inhabitants come and go; it is a phenomenon of persons en masse. The assembly and the behavior pattern are mutually fitting or synomorphic; they are adapted in form to one another. The inhabitants all stand in dual position. Each is an instrument of the extra-individual behavior process and yet each is an executor of his own needs. It is, further, only in the first of these positions that any inhabitant belongs to the setting as such. Each is otherwise a free agent in a field of action that he enters and acts upon and that acts upon him [p. 18].

The defining attributes of behavior settings which were adopted here are based on the original criteria as specified by Barker and Wright (1955). Barker (1968) has presented new developments in technique and description which are not represented in this study.

Identification and Classification of Behavior Settings

The original behavior setting survey method, as developed by Barker and Wright (1955), relied heavily upon close observation of the community on which the survey was based. The technique was accomplished in a variety of ways, including direct observation of public places, interviews with the community residents, and following the news media in their portrayal of community life.

The recent research by Wright (1969b), establishes that a behavior setting survey can be reliably conducted without a direct observation process. This procedure involves recording children's activities through daily interviews between mothers and their children. Each mother is fully trained prior to the data collection. A trial period of data collection precedes collection of the substantive data which is later analyzed. The data are recorded on printed pages which have a structured format, and which are sent to the investigator at regular intervals. Unlike collecting data for behavior episodes, this adaptation of the behavior setting survey frees the investigator to assess behavior without being in the situation

where the behavior occurs, and to obtain full-day records over protracted time intervals without being overwhelmed by the volume of the data generated. A more explicit description of this method appears later in the chapter.

From inspection of the daily records, community units are identified as provisional behavior settings on the basis of judgment that they possess the requisite structural characteristics. These include:

1. A discriminable pattern in the behavior of men en masse which occurs independently of the particular persons involved in it; i.e., a standing pattern of behavior
2. which has a synomorphic relationship with
3. a particular milieu complex
4. that exists independently of the standing pattern of behavior, and
5. is circumjacent to the standing pattern of behavior (Barker & Wright, 1955, pp. 60-62).

Secondly, rating scales are used to single out as true settings all such units that fall within a specified range of mutual independence and internal unity. These dynamic criteria assert that compared provisional settings are independent of one another in the degree to which they are separated in space, divorced in time, supplied with different things, inhabited by different persons, ruled by different power figures, and animated by different standing behavior patterns (Barker & Wright, 1955; Wright, 1969a).

Objective criteria are used to group behavior settings into varieties (i.e., a classification of behavior settings

by similarities), examples of which have been catalogued in the publications of Barker and Wright (1955) and Wright (1969b). Examples of varieties include Restaurants and Taverns, Outdoor Athletic Contests, and Indoor Entertainments. Varieties, in turn, are to be used to sort the settings by kind. Recreational, Cultural, Service, and Religious settings are common dimensions of kind.

Measures of the Activity Range Abroad

Measures of the child's activity range when he is away from home and not at school are explored by variables that differ in coverage. The particular descriptive targets are best represented by the measures themselves, which are defined by Wright (1969b) as follows:

Scope: The N of behavior settings entered by the child.

Heterogeneity: The N of varieties formed by entered settings.

Motility: The frequency of visits to these settings.

Occupancy: The amount of time spent in the different settings.

Reentrance rate: The N of visits per setting.

Time cumulation: The time amassed per setting.

Dispersion: The N of entered settings per variety.

Penetration: The absolute and relative frequencies of participations at different performance levels in entered settings [Pp. 212-213].

Identification and Classification of Behavior Objects

It has been pointed out that one connection between

individual behavior and the phenomena of a community medium are behavior settings. Another connection is behavior objects. According to Wright (1969a):

Behavior objects occur inside behavior settings, where their relationship to the including units is like the relationship of stage properties to the scenes of a play. Physical objects or things and social objects or persons account for the bulk [p. 24].

Physical objects like pencils and books are complemented in a classroom situation by social objects like teachers and pupils.

For this study, it is of special interest to describe the social behavior objects (companions) within behavior settings.

Wright (1970) has suggested that there are three possible ways to define companions within behavior settings:

1. Physically present others.
2. Encountered others.
3. Others who move with or stay with the child.

Both (1) and (2) are considered to present insurmountable difficulties for a methodology in which no independent observer is present. Possibility (3), which defines a companion essentially as an escort, is communicable in simple language and presents no great reflective demands on either the mother or the child. Thus, it was judged to be the best workable definition for this study. The data for companions, analogous to Time Cumulation, are regarded as approximate

since some degree of subjective judgment is involved on the part of the participants. Even so, approximative data constitute a quantifiable basis for assessing the extent to which others flow with the child in his movement within behavior settings.

Formal and Informal Behavior Settings

Wright's (1969b) behavior setting survey analyzed only formal settings, i.e., behavior settings which were manned, scheduled, and supervised. Clearly, these criteria result in the omission of large numbers of activities whose primary purpose is play or socialization, and which violate one or more of these criteria. To omit this source of data was considered to be undesirable in a study which seeks to account for children's time spent away from home and school. Therefore, the construct of the informal behavior setting was utilized. Its defining attributes follow from those of formal settings, with the exception that they violate one or more of the formal setting criteria, and consist of activities whose primary purpose is play or socialization.

Preliminary data, sent by the participating mothers in this study on a trial basis, suggested that informal behavior settings present special problems resulting from the reflective demands they place on both the mother and child, which in turn influence the quality of the recordings. For example, when one child visits or plays with another child, he very well may not know in advance exactly what they intend

to do together. Diverse types of play behavior patterns may occur in unpredictable sequences which are difficult to recall. The mother may know with confidence that her child went next door to play, while having little idea of what he played.

It was decided, therefore, that informal settings should receive separate consideration from formal settings. This potentially valuable source of data was included as an area of analysis in its own right.

Statement of Questions

The present study represents an initial effort to assess participation in behavior settings away from home and school in a particular handicapped population compared with a nonhandicapped one. The general paucity of studies concerning the adjustment of facially disfigured children was previously discussed. Therefore, rather than formal hypotheses or propositions, a set of open questions are posed.

The questions reflect the variables conceived for the statistical analysis of formal behavior settings (Barker & Wright, 1955; Wright 1969b), and are formulated in terms of (a) entered settings; (b) entries into settings; (c) entries per setting; (d) varieties of settings; and (e) settings per variety. A diagrammatic representation of these variables is presented in Figure 3.1. Other variables include (f) companions per entries into settings; (g) absolute occupancy time; (h) time cumulation within settings;

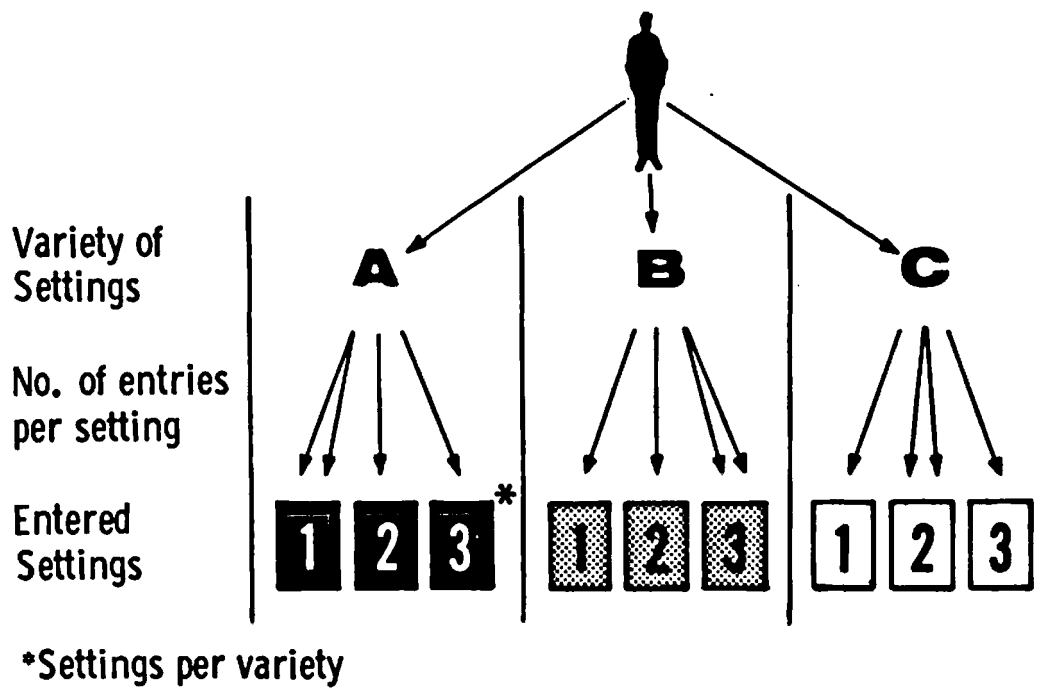


FIGURE 3.1
A HYPOTHETICAL REPRESENTATION OF SOME
TARGETS OF BEHAVIOR SETTINGS

and (i) penetrations into settings. The levels of participation which were employed for formal settings are not applicable to informal settings. Thus, a different category system was devised as shown in Table 3.1.

For certain of the variables, finer differentiations have been made for statistical comparison, e.g., the variable, "entered settings", can be further analyzed by comparing home settings, nonhome settings, and foreign settings (in another town or city) between the disfigured and nondisfigured groups. This analysis was not done, however, because of the low frequency of activities in formal settings within homes and in foreign communities.

Formal and informal settings are separated in the statistical analysis. Inspection of the trial data revealed that informal settings almost always occurred locally either in homes, trafficways, or open spaces. Accordingly, finer comparisons for informal settings are made for three varieties, designated as "Home-Play Socialization", "Trafficways", and "Open Spaces".

Question number one (Scope): For formal and informal settings, are there differences between the disfigured and nondisfigured groups in the number of entered settings? Do differences exist when the entered informal settings are separated as "Home-Play Socialization", "Open Spaces", and "Trafficways"?

Question number two (Motility): For formal and informal

TABLE 3.1

SCALE FOR RATING PENETRATIONS INTO BEHAVIOR SETTINGS

FORMAL

- | | | |
|---|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| 1 | Bystander
or follower | Child takes no part and has no definite place in the setting. Example: Just "standing around" in a store. |
| 2 | Spectator
or Guest | Child takes no part but has a definite place. Examples: Attending a movie. Visiting an adult meeting as a guest. |
| 3 | Member or
Customer | Child takes ordinary part as a member or customer. Examples: Attending a group meeting as a member. Buying something in a store. |
| 4 | Special
Participant | Child takes a special part in the setting. Example: Filling a role in a play. |
| 5 | Joint
Leader | Child takes the lead along with someone else. Example: Acting as president at a club meeting with an adult also in charge. |
| 6 | Single
Leader | Child takes the lead alone. Examples: Directing a rhythm band. Heading a Scout patrol on a hike. |
-

INFORMAL

- | | | |
|---|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7 | Active | Gross motor or strenuous activity; activity which requires a substantial degree of interpersonal cooperation. Examples: Athletics or other active outdoor play, helping with chores. |
| 8 | Passive | Sedentary or nonstrenuous activity. Examples: Walking, visiting, observing, listening, and playing parlor games. |
| 9 | Indeterminate | Ambiguous recording of what was actually done. Examples: Playing outside, playing inside, or just playing |
-

settings, are there differences between the disfigured and nondisfigured groups in the number of entries into settings? Do differences exist when the number of entries into informal settings are analyzed as "Home-Play Socialization", "Open Spaces", and "Trafficways"?

Question number three (Companions): For formal and informal settings, are there differences between the disfigured and nondisfigured groups in the number of entries into settings with specified companions? The two general categories of adults and children were employed, with the latter divided into siblings and friends. The adults were designated as mother, father, relatives, and all others, such as adult friends, neighbors, temporary caretakers, and so forth.

Question number four (Reentrance Rate): For formal and informal settings, are there differences between the disfigured and nondisfigured groups in the number of visits per setting for local settings? Do differences exist when the visits per setting are separated into "Home-Play Socialization", "Open Spaces", and "Trafficways"?

Question number five (Heterogeneity): Are there differences between the disfigured and nondisfigured groups in varieties of entered formal settings?

Question number six (Dispersion): Are there differences between the disfigured and nondisfigured groups in the number of entered formal settings per variety?

Question number seven (Occupancy): For formal and informal

settings, are there differences between the disfigured and nondisfigured groups in the absolute amount of time spent in entered settings?

Question number eight (Time Cumulation): For formal and informal settings, are there differences between the disfigured and nondisfigured groups in the hours amassed per entered setting?

Question number nine (Penetration): For formal and informal settings, are there differences between the disfigured and nondisfigured groups in the penetrations into the participation zones of local settings?

Subjects

The subject population includes an experimental group of eight children who were all reconstructive patients of the Shriners Burns Institute, Galveston Unit, and a matched control group. All subjects were between 6 and 12 years of age. The experimental subjects were at least 1-year beyond treatment for the acute burn and all had the uniform condition of facial disfigurement secondary to the burn accident. This is not to say that all the children in the experimental group had uniform facial disfigurement; in fact, each had differing extents of facial disfigurement. However, all did have some type of visible scarring, ranging from the underside of the chin to the upper hairline, and ear to ear across the face. Based on the grouping criteria of MacGregor, Abel, Bryt, Lauer, and Weissman (1953), all

experimental subjects were classifiable into either the moderate, marked, or gross categories of deformity.

Every attempt was made to select only children who had a minimum of functional impairment. This was accomplished to the extent that all subjects were fully ambulatory, although two boys had a slight decrement in hand function deriving from residuals of the burn accident. In both of these cases, however, each had sufficient function to dress himself, manipulate the utensils required for school participation, and to accomplish most tasks requiring fairly sophisticated, fine motor coordination. The experimental group consisted of six boys and two girls.

Additional criteria for inclusion in the experimental group were that each child selected came from an intact family having both a mother and a father present in the home situation. Intellectual level was not assessed, although each child was required to be in the proper grade in school relative to his age. The only exceptions were one boy and one girl who were retained in the same grade following the burn accident, for the reason that prolonged hospitalization during that academic year rendered them unable to keep abreast of academic work. Each child selected had at least one sibling present in the home situation. Length of community residence was controlled in that every child was a resident of his community for at least 1-year prior to the study. This assured that each child would

have some familiarity with the extraindividual context of his community and would not be a stranger to his surroundings.

Matching criteria for the control group follow from the criteria for selecting the experimental group, except that these were nonburned, nondisfigured children. Age similarity between matchings was within 6 months in all cases. Each control group child came from the same community as the corresponding partner in the experimental group, in deference to the findings of Wright (1969b) regarding the importance of community size in relation to activity regimen. In several cases, the control was indeed the boy next door or the friend from across the street. Other demographic differences were minimal in the two groups, as shown by Table 3.2.

After consultation with recognized authorities in the field of ecological psychology, including Herbert F. Wright, it was determined that subcultural differences should be minimized in the present investigation. Inclusion of children from diverse ethnic backgrounds might introduce confounding variation in the dependent variables, apart from the effects of facial disfigurement. Unless ethnic variety is included as an independent variable in its own right, this potential source of variation is best omitted from the present study.

TABLE 3.2

SOME DEMOGRAPHIC CHARACTERISTICS OF THE
DISFIGURED AND NONDISFIGURED GROUPS

	Disfigured (N=8)	Nondisfigured (N=8)
Mean age of subjects	9.5	9.5
Mean education of subjects	3.4	3.5
Mean age of father	36.0	38.1
Mean age of mother	32.5	35.0
Mean education of father	14.6	14.5
Mean education of mother	12.2	13.7
Mean number of siblings	2.6	3.4
Mean birth order of subject	2.4	2.0
Mean length of residence at present address of subject	3.7	4.0

from the present study.

Subject Recruitment

Potential subjects for the experimental group were first identified on a basis of data obtained from Medical Records which, in addition to the previously mentioned criteria, included the additional criterion of relative geographic proximity to Galveston, Texas. This helped to insure that each mother participating in this study could be paid a personal visit for explanatory purposes, and geographic proximity facilitated this possibility. Next, the prospective mothers were contacted by telephone to describe the general intent and aims of the study, and to solicit participatory consent. Each mother was asked to recruit another mother from her community for the control group, and was informed that a fee of \$25 was offered to each mother who participated. This both facilitated a commitment to the study and made recruitment of the control mother more enticing. The mothers were advised that the results of the study would be submitted for scientific publication, and that the anonymity of each child in the study and his family would be fully protected. Finally, the mothers were advised to give consent only after consultation with other family members, and to place a collect telephone call to the investigator telling him of her decision.

After participatory consent was gathered, each experi-

mental and control group mother was sent a guide which fully explained the procedures of the study. The guide is a revision of the one used by Wright (1969b). In all cases, a genuine attempt was made by the investigator to visit each mother participating in the study to assure a full understanding of the procedure. Of the 16 participating mothers, 15 were personally seen by the investigator. The single mother who was not seen received a similar complete explanation via telephone. Following this, a 2-day trial period of data collection preceded the actual data collection, which involved a daily interview schedule of 4 weeks duration. Complete 4-week records were analyzed for only half the entire group. An unforeseeable flu epidemic resulted in an average loss of 1-week of recordings for this segment of the group. When only one child was ill, the corresponding recording for his control partner was disallowed. The dutiful mothers spontaneously included a health report on the daily records when their child was ill.

In retrospect, the strategy of having the experimental group mothers recruit the control group mothers and children deserves special mention. It is apparent that the recruits were highly similar to the experimental group along all the demographic dimensions which this study sought to control. The recruitments were accomplished quickly and with apparent ease by the experimental mothers, which solved a difficult dilemma on how to solicit suitable control

subjects who resided in geographical locales unfamiliar to the investigator.

Collection of the Data

The mothers were the data gatherers, although the data each mother collected derived from the child's account as well as her own knowledge of his daily activities. This procedure demanded that each mother be trained. In addition to the guide and full explanation from the researcher prior to the study, each mother was offered unlimited telephone access to the researcher during the study in the event she had any questions.

An overview of the training procedure, including how each mother was to record and organize the data, can be seen by examining the guide itself, which appears in the appendix. A sample page is included at the end of the booklet giving concrete representations of how the data were to be structured. Each activity was specified, along with what part the child played in that activity, under the general heading of "Activity". The other headings applicable to each activity include, "Where", "When", "How Long", and "With Whom". The precise meanings of these categories is made clear in the guide. In essence, the format of the record page defined the content rules. Each mother was supplied with enough record pages to insure that each day's record was on a separate page, which facilitated orderly collection and ready separation of the data for statistical

analysis.

A daily interview between mother and child constituted the setting for the data collection. The mother elicited from her child a recounting of his activities on a daily basis. While verbal and written suggestions in the guide were made for structuring the interview situation, each mother had the freedom to employ her own natural mode of operation.

Statistical Considerations

Each activity, i.e., every visit to a behavior setting over the 4-week interview period, received a numerical code based on: (a) location (home, nonhome, or foreign setting), (b) variety, (c) setting, (d) occupancy time, (e) penetration, and (f) companions.

All the data analyzed consisted of frequency or proportional distributions. T-tests for related samples were used to compare the disfigured and nondisfigured groupings on the various measures.

The level of significance chosen was the .05 level for two-tailed tests. Differences between the .05 and .20 levels are discussed as trends.

A reliability study for all the descriptive variables involving the complete records for two of the children has been accomplished and is reported in the Results chapter.

CHAPTER IV

RESULTS

This chapter contains the following sections: studies of reliability on recording and on coding the activities; tests of the nine major questions posed by this study; and analyses to supplement the tests of questions.

Reliability Studies

In the present study, three measures were employed to assess reliability. These included a measure of mother confidence, an unobtrusive measure of agreement in the recordings between mothers, and a measure of agreement between two independent analysts for all the ratings with the exception of Time Cumulation, which was accepted at face value for all the recorded activities.

The mother confidence measure was identified from the daily records, which included a "completeness rating" on each daily record page. This consisted of a three-point scale, on which the mothers were instructed to encircle 1 if they thought the daily record was complete, 2 if the record was thought to be moderately complete, and 3 if the record was thought to be incomplete (see booklet - Appendix). No statistical analysis was considered necessary for this measure; the rating 3 did not appear in any of the records. It was clear that the mothers had confidence in the

inclusiveness of the records, consistent with Wright's (1969b) observation concerning his survey.

The unobtrusive measure of agreement in the recordings between mothers was constructed to take advantage of the following circumstance. Three of the survey children resided in consecutive houses within the same city. The high degree of physical proximity, similarity in age, and social compatibility resulted in several mutual activities between these children during the survey period. The essential question for this measure was whether there were congruent recordings between the mothers for those activities which included at least one of the other two children. Potential participatory activities, i.e., activities which included at least one of the other children as recorded by one mother, were compared with actual participatory activities, i.e., activities in which there existed a recorded congruence between the resulting permutations. These data are presented in Table 4.1. The measures are left to stand in support of the agreement in the recordings between the mothers as they are reported in the table.

The final reliability study of agreement between the two independent analysts for all the codes except for Occupancy Time is reported in Table 4.2. The data which formed the basis for this assessment included the complete records for the survey period of two children chosen randomly, one each from the disfigured and nondisfigured group. Percentage

TABLE 4.1

RELIABILITY STUDY OF RECORDINGS FOR PARTICIPATORY
ACTIVITIES INVOLVING THREE OF THE SURVEY CHILDREN

Children	Potential Participatory Activities	Actual Participatory Activities	% Agreement
A & B	9	7	78
A & C	6	6	100
B & C	9	7	78
A, B & C	4	4	100
Total	28	24	86

Note. - Potential participatory activities = Total N of activities including at least one of the other children as recorded by a particular mother. Actual participatory activities = Total N of activities where the mother-recorders are in agreement that the activities did include at least one of the other children.

TABLE 4.2
RELIABILITY STUDY OF CODING BEHAVIOR SETTINGS
USING CODERS X AND Y

Code	(X + Y)	(XY)	% Agreement
Formal Settings	51	51	100
Informal Settings	38	38	100
Locations Combined (Formal & Informal)	89	82	92
Varieties Combined (Formal & Informal)	89	83	93
Entered Settings (Formal & Informal)	89	87	98
Penetrations Combined (Formal)	52	45	87
Penetrations Combined (Informal)	37	34	92
Companions Combined (Formal & Informal)	134	114	85

Note. - (X+Y) = Total N of ratings across coders.
(XY) = Total N of ratings where coders are in agreement.

of agreement between the independent analysts was computed by the formula $100 \times \frac{2 (\text{sum } XY)}{\text{sum } X + \text{sum } Y}$, where "sum XY" is the total number of a particular rating where the analysts are in agreement; "sum X + sum Y" are the total number of a particular rating identified by the analysts. The particular ratings include all the fundamental categories of behavior settings which were coded in order to answer the questions posed by this study. As shown in the table, there were satisfactory percentages of agreement for all the fundamental categories, including setting type (formal vs. informal settings), location (home, nonhome, and foreign), varieties, entered settings, penetrations, and companions.

It deserves comment that a pre-freshman medical student with no formal training in psychology was one of the analysts. It is considered that this happenstance attests to the basic conceptual simplicity of the behavior setting and to the workability of its ratings.

Evaluation of the Questions Posed

The nine major questions posed by the present study resulted in comparisons between a group of facially disfigured burned children and a matched, nondisfigured group of children. The data are expressed in terms of descriptive variables of behavior settings which reflect the behavior of these groups in their natural habitats, i.e., the communities in which they function. Formal behavior settings,

which are scheduled and supervised, are distinguished from informal settings, which are nonscheduled and nonsupervised. The informal settings are further divided into categories of "Home-Play Socialization" (H-P S), "Open Spaces" (OS), and "Trafficways" (T), for statistical analyses. The specific analyses are presented more fully in relation to each particular descriptive variable.

Scope

Question number one asked whether there were differences between the disfigured and nondisfigured groups in the number of entered settings (p.38). These data are presented in Table 4.3. Formal behavior settings were distinguished from informal ones. The comparison for the mean sum of formal settings (All Formal Settings Abroad) approached ($p = .20$), but did not meet, the two-tailed significance level of .05. Likewise, the comparison for the sum of all informal settings (All Informal Settings Abroad) approached ($p = .20$), but did not meet, the stated significance level. The greater magnitude of the mean sums was in favor of the nondisfigured group for both comparisons.

The H-P S, OS, and T comparisons, derived from dividing informal settings, were also not significant. The H-P S and T comparisons, however, approached statistical significance ($p = .20$). The greater magnitudes of these mean sums were in favor of the nondisfigured group. Expression of these part-summations enables an additional presentation of these

TABLE 4.3

MEAN SUM AND MEAN PERCENT OF DIFFERENT
ENTERED SETTINGS ABROAD

Living Zone	Sum			Percent		
	D	ND	p	D	ND	p
All Formal Settings Abroad	11.5	14.4	.20	100	100	-
Home-Play Sociali- zation	6.4	7.3	.20	18	18	NS
Open Spaces	1.6	2.0	NS	72	67	.20
Traffic- ways	0.9	1.6	.20	10	15	.05
All Informal Settings Abroad	8.9	10.9	.20	100	100	-

data as percentages. In essence, one can ask not only if the groups differed in numbers of entered informal settings, but also whether these entered settings occurred relatively more often. The resulting H-P S and OS comparisons were not significant; the T comparison was significant at the .05 level in favor of the nondisfigured group. The H-P S comparison approached statistical significance ($p = .20$) in favor of the disfigured group.

It is concluded that the disfigured group does not significantly vary from the nondisfigured group in the number of entered settings. This relation holds for both formal and informal entered settings. On the whole, there was not a relatively greater occurrence of the informal setting categories, with the exception of T, which did differ significantly in favor of the nondisfigured group. A pattern is suggested, however, in numbers of entered settings, with the greater magnitude in favor of the nondisfigured group for each separate analysis. This is based on the finding that of the five separate summative analyses, four approached, but did not meet, the acceptable .05 level of significance.

Motility

Question number two asked whether there were differences between the disfigured and nondisfigured groups in the number of entries into settings (p.38). These data are presented in Table 4.4. Formal behavior settings were distinguished from informal ones. The comparison for the sum

TABLE 4.4

MEAN SUM AND MEAN PERCENT OF ENTRIES INTO ABROAD
SETTINGS IN STATED CATEGORIES

Living Zone	Sum			Percent		
	D	ND	p	D	ND	p
All Formal Settings Abroad	20.50	32.50	.20	100	100	-
Home-Play Sociali- zation	20.25	19.00	NS	74	80	NS
Open Spaces	4.37	2.87	.20	16	12	.20
Traffic- ways	2.62	1.87	NS	10	8	.20
All Informal Settings Abroad	27.25	23.75	.20	100	100	-

of formal settings (All Formal Settings Abroad) approached ($p = .20$), but did not meet, the criterion of statistical significance. Similarly, the comparison for the sum of all informal settings (All Informal Settings Abroad) approached ($p = .20$), but did not meet, the stated significance level. The greater magnitude of the mean sums was in favor of the nondisfigured group for all formal settings, but in favor of the disfigured group for all informal settings.

The H-P S, OS, and T comparisons were not significant; the OS comparison, however, approached statistical significance ($p = .20$), with the mean sum in favor of the disfigured group. Expression of these summative data as percentages reveal no significant differences; the H-P S, OS and T comparisons indicate no relatively greater occurrence for entries into informal settings. The OS and T comparisons, however, did approach statistical significance ($p = .20$), with the greater percentage in favor of the disfigured group for both analyses.

It is concluded that the disfigured group does not significantly vary from the nondisfigured group in the number of entries into settings. This relation holds for both formal and informal entries into settings. A pattern is suggested, however, in numbers of entries into settings, with the greater magnitude in favor of the nondisfigured group for formal settings, but in favor of the disfigured

group for informal settings. This is based on the finding that of the five separate summative analyses, three approached, but did not meet, the acceptable .05 level of significance. There were no relatively greater occurrences of the informal setting categories.

Companions

Question number three asked whether there were differences between the disfigured and nondisfigured groups in the number of entries into settings with specified companions (p.40). These data are presented in Table 4.5. Formal behavior settings were distinguished from informal ones. The data are stated as percentages rather than as summations. The issue is not considered to be whether the children of one group enter behavior settings with their mother, father, etc. absolutely more often than members of the other group, but whether the settings are entered relatively more often with these specified companions.

The children's companions were designated as adults and children. The former were differentiated as mother, father, relatives, and others, with the latter differentiated as friends and siblings. A separate category, when the children entered a setting alone, was also considered. None of the resulting analyses, whether for formal or informal settings, reached statistical significance at the .05 level. Of 14 comparisons, however, seven approached significance at the .20 level or less. For formal settings,

TABLE 4.5
PERCENT OF ENTRIES INTO ABROAD SETTINGS
WITH SPECIFIED COMPANIONS

FORMAL	D	ND	p
<u>ADULTS</u>			
Mother	37	33	NS
Father	27	30	NS
Relatives	12	6	.20
Others	7	4	NS
<u>CHILDREN</u>			
Friends	28	20	NS
Siblings	67	53	.10
Alone	9	18	.20
INFORMAL			
<u>ADULTS</u>			
Mother	5	16	.10
Father	4	11	.10
Relatives	9	8	.20
Others	7	4	NS
<u>CHILDREN</u>			
Friends	80	68	.20
Siblings	37	31	NS
Alone	4	4	NS

these included relatives ($D\% > ND\%$), siblings ($D\% > ND\%$), and the category alone ($ND\% > D\%$); for informal settings mother ($ND\% > D\%$), father ($ND\% > D\%$), relatives ($D\% > ND\%$), and friends ($D\% > ND\%$).

It is concluded that the disfigured group does not significantly vary from the nondisfigured group in the number of entries into settings with specified companions. In addition, there are no differences in entries into settings alone between the two groups. A pattern is apparent, however, for entries into formal settings with companions. Of six analyses, five revealed a greater percentage of the companion designation in favor of the disfigured group, although only two of these approached statistical significance. The "alone" designation approached significance in favor of the nondisfigured group. No definite pattern was apparent for the designations comprising informal settings.

Reentrance Rate

Question number four asked whether there were differences between the disfigured and nondisfigured groups in the number of entries per setting for local (within city of residence) settings (p.40). Only local settings were included in this analysis because of the low probability of children reentering foreign settings during the survey period, which averaged less than 1 month for each child. These data are presented in Table 4.6. Local formal settings were distinguished from local informal ones. The

TABLE 4.6
MEAN NUMBER OF ENTRIES PER LOCAL ABROAD SETTINGS

Living Zone	D	ND	p
All Local Formal Settings	1.75	2.38	.20
Home-Play Socializa- tion	2.69	1.44	.10
Open Spaces	3.18	2.62	.20
Traffic- ways	3.00	1.15	NS
All Local Informal Settings	3.07	2.18	.05

comparison for the mean number of local formal settings (All Local Formal Settings Abroad) approached ($p = .20$), but did not meet, the criterion of statistical significance. The comparison for the mean number of local informal settings (All Local Informal Settings Abroad) was significant at the .05 level. The greater magnitude of the average number of entries per setting was in favor of the nondisfigured group for local formal settings, but in favor of the disfigured group for local informal settings. The disfigured group, therefore, made a greater average number of entries per local informal setting than did the nondisfigured group. This finding is consistent with the previously noted pattern in which the nondisfigured group visited a greater number of entered informal settings, but the disfigured group made a greater number of entries into settings. Both these previous analyses did not attain statistical significance.

The H-P S, OS, and T comparisons, derived from dividing local informal settings, were not statistically significant. The H-P S and OS comparisons, however, approached statistical significance ($p = .20, .10$). The greater magnitudes of the mean numbers of entries for these three informal settings comparisons were in favor of the disfigured group.

It is concluded that the disfigured group does not significantly vary from the nondisfigured group in number of entries per setting for local formal settings. The disfigured

group did make a significantly greater number of entries per setting for local informal settings. For formal settings, a pattern continues in favor of the nondisfigured group for the variable of entries per local setting. Once again, statistical significance is approached, but not met.

Heterogeneity

Question number five asked whether there were differences between the disfigured and nondisfigured groups in the number of varieties formed by entered formal settings (p.40). These data are presented in Table 4.7. The resulting comparison (All Formal Varieties Abroad) approached ($p = .20$), but did not meet, the criterion of statistical significance. The greater magnitude of the mean number of formal varieties was in favor of the nondisfigured group. This is consistent with a continuing pattern of the nondisfigured group having a numerical advantage in relation to the disfigured group for every major activity variable of formal settings.

Dispersion

Question number six asked whether there were differences between the disfigured and nondisfigured groups in the number of entered formal settings per variety (p.40). These data are presented in Table 4.8. The resulting comparison (Mean) neither met nor approached statistical significance. The greater magnitude of the average number of entered formal settings per variety was very slightly in

TABLE 4.7

MEAN NUMBER OF VARIETIES FORMED BY ENTERED
NONHOME FORMAL SETTINGS

Living Zone	D	ND	p
<hr/>			
All Formal Varieties Abroad	4.37	6.00	.20

TABLE 4.8
MEAN NUMBER OF ENTERED FORMAL SETTINGS
PER VARIETY

Settings Per Variety	D	ND	p
Mean	2.63	2.40	NS

favor of the disfigured group. It is concluded that this particular variable is essentially noncontributory to any pattern consistent with previously mentioned relationships.

Occupancy

Question number seven asked whether there were differences between the disfigured and nondisfigured groups in the absolute amount of time spent in entered settings (p.40). These data are presented in Table 4.9. Local formal behavior settings were distinguished from local informal ones. The comparison for the mean number of hours spent in formal settings (All Local Formal Settings) approached ($p = .20$), but did not meet, the criterion of statistical significance. Similarly, the comparison for the mean number of hours spent in informal settings (All Local Informal Settings) approached ($p = .20$), but did not meet, statistical significance. The greater magnitude of the average number of hours spent was in favor of the nondisfigured group for formal settings, but in favor of the disfigured group for informal settings.

It is concluded that the disfigured group does not significantly vary from the nondisfigured group in the average number of hours spent per entered setting in either formal or informal settings. A numerical advantage of hours spent, however, exists for the nondisfigured group in formal settings and for the disfigured group in informal settings. This represents no contradiction of consistency in the total relationship to the other descriptive variables considered

TABLE 4.9

MEAN SUM OF HOURS SPENT IN ABROAD SETTINGS

Living Zone	Sum		
	D	ND	p
All Formal Settings Abroad	24.55	36.93	.20
All Informal Settings Abroad	36.13	21.65	.20

by this study. Wherever the disfigured group has a numerical advantage in comparison with the nondisfigured group for any variable, it is only in relation to informal settings.

Time Cumulation

Question number eight asked whether there were differences between the disfigured and nondisfigured groups in the hours amassed per entered setting (p.41). These data are presented in Table 4.10. Formal behavior settings were distinguished from informal ones. The comparisons for the mean sum of hours spent in all formal settings (All Formal Settings Abroad) and for all informal settings (All Informal Settings Abroad) approached ($p = .20$), but did not meet, the criterion of statistical significance. The greater magnitude of hours spent in abroad settings was in favor of the disfigured group for both comparisons.

It is concluded that the disfigured group does not significantly differ from the nondisfigured group in the mean number of hours amassed in either formal or informal settings. However, a tendency exists for the disfigured group to spend more cumulative time in both formal and informal settings. This presents an apparent contradiction for formal settings with the internally consistent relationship to the other descriptive variables. A resolution is suggested which does make intuitive sense. It is simply that the disfigured group remains a greater length of time per setting because

TABLE 4.10
 MEAN NUMBER OF HOURS SPENT PER LOCAL
 ABROAD SETTING

Living Zone	D	ND	P
All Local Formal Settings	1.01	0.94	.20
All Local Informal Settings	1.33	0.91	.20

they engage in fewer activities numerically. Alternatively, the nondisfigured group stays a shorter length of time per setting because they engage in more activities numerically.

Penetration

Question number nine asked whether there were differences between the disfigured and nondisfigured groups in the penetrations into participation zones of local settings (p.41). These data are presented in Table 4.11. Formal behavior settings were distinguished from informal ones, and different concepts of penetration were applied to these two contrasting arenas of activity. Table 3.1 (p.3) serves as an explanatory guide for penetration zones one through nine. Penetration zone number six, corresponding with "single leader," was omitted for statistical consideration since, as Wright (1969b) points out, this zone does not ordinarily occur with primary school age children.

For formal settings, the comparison for the mean sums of zones 1-2 and for zone 3 approached ($p = .20$), but did not meet the criterion of statistical significance. The greater magnitude of the mean sums for these two comparisons was in favor of the nondisfigured group. The comparison for zones 4-5 neither met nor approached statistical significance. For informal settings, the comparison for the mean sum of zone 7 neither met nor approached statistical significance. The comparison for zone 8 approached ($p = .20$), but did not meet, the criterion of statistical significance.

TABLE 4.11

MEAN SUM AND MEAN PERCENT OF ENTRIES INTO LOCAL
SETTINGS ABROAD IN DIFFERENT PENETRATION ZONES

Zones	Sum			Percent		
	D	ND	p	D	ND	p
<u>FORMAL</u>						
1-2	3.87	7.25	.20	23	24	NS
3	12.12	21.62	.20	73	73	NS
4-5	0.62	0.87	NS	4	3	NS
<u>INFORMAL</u>						
7	12.37	11.25	NS	46	47	NS
8	6.75	9.00	.20	25	38	.20
9	7.87	3.50	.05	29	15	.20

The greater magnitude of the mean sum for this comparison was in favor of the nondisfigured group. The comparison for zone 9 (Indeterminate) was statistically significant at the .05 level. The greater magnitude of the mean sum for this comparison was in favor of the disfigured group. This suggests greater ambiguity in the recordings for penetrations into informal settings by the mothers of the disfigured group. This result is difficult to explain on any basis other than that the mothers of the nondisfigured group were better educated (13.7 vs. 12.2 years), and perhaps somewhat more detail oriented and inclusive in their recordings.

All these comparisons represent part-summations of formal and informal settings, which permits two analyses for absolute and relative penetration based on each comparison. The relative comparisons are perhaps more germane to the issue of penetration; stated as percentages, they are uninfluenced by the variable of "entries into settings", which, as described, lend an advantage to the nondisfigured group for formal settings. The essential issue is whether one group or the other is relatively more often a bystander, spectator, customer, etc.

For formal settings, the percent comparisons for zones 1-2, 3, and 4-5 neither met nor approached the criterion of statistical significance. For informal settings, the percent comparison for zone 7 neither met nor approached statistical significance. The percent comparisons for zone 8 and

for zone 9 approached ($p = .20$), but did not meet, the criterion of statistical significance. The greater magnitude of the percentages was in favor of the nondisfigured group for the former comparison, but in favor of the disfigured group for the latter comparison.

It is concluded that, for formal settings, there are no differences between the absolute and relative penetrations into different participation zones between the disfigured and nondisfigured groups. For informal settings, the conclusion of no significant differences generally holds, with the exception of absolute number of penetrations into zone 9 (Indeterminate), which was statistically significant in numerical favor of the disfigured group at the .05 level. The basic interpretation of these data is that there is no pattern or general relationship in the variable of penetration zones, with the exception of greater ambiguity in the recordings for the disfigured group. This is applicable only to informal settings.

Supplementary Analyses

A supplementary analysis on content of the activity range in the compared groups is presented in Table 4.12. The table represents the types of varieties, organized by kind, traversed by both the disfigured and nondisfigured groups, including the percentage of total occupancy time which each group contributed to each individual variety. In addition, each percentage is ranked in relation to the other

TABLE 4.12
VARIETIES CATALOGUE

Variety	Proportion of Occupancy Time		Rank	
	D	ND	D	ND
RECREATIONAL				
Indoor Athletic Contests	.029	.006	2	6
Motion Picture Theaters	.026	.022	3	4
Open Spaces	.009	.024	6	3
Outdoor Athletic Contests	.006	.044	7	2
<u>Parades</u>	.000	.005	8.5	7
Parties	.100	.077	1	1
Picnics	.022	.000	4	9.5
<u>Resorts</u>	.000	.007	8.5	5
Roller Skating Rinks	.018	.000	5	9.5
Sponsored Social Occasions	.029	.004		8
Total	.239	.189	-	-
RELIGIOUS				
<u>Church Choir Practices</u>	.000	.010	5	4
Educational Fellowships	.059	.059	1	1
Regular Worship Service	.187	.057	2	2
<u>Services Rituals Practice</u>	.006	.000	4	5

VARIETIES CATALOGUE (Continued)

Variety	Proportion of Occupancy Time		Rank	
	D	ND	D	ND
Sunday School Classes	.009	.038	3	3
Total	.261	.164	-	-
SERVICE				
<u>Airports</u>	.015	.009	2.5	5
Attorneys	.000	.001	10.5	9.5
Barber & Beauty Shops	.003	.017	4.5	3
Child Care Services	.000	.137	10.5	1
Dental Offices & Clinics	.056	.001	1	9.5
Doctors Offices	.015	.000	2.5	12.5
Fire Stations	.003	.000	4.5	12.5
Government Offices	.000	.000*	10.5	11
Hospitals	.000	.002	10.5	7.5
<u>Hotels & Motels</u>	.000	.043	10.5	2
Post Offices	.000	.002	10.5	7.5
<u>Radio-TV Stations</u>	.000	.005	10.5	6
School Offices	.000	.011	10.5	4
Total	.092	.228	-	-
ORGANIZATIONAL				
Extra Formal Group Sessions	.025	.000	2	3.5

VARIETIES CATALOGUE (Continued)

Variety	Proportion of Occupancy Time		Rank	
	D	ND	D	ND
<hr/>				
<u>Fund & Membership</u>				
<u>Drives</u>	.009	.000	3	3.5
<u>Nonsecular Formal</u>				
<u>Group</u>	.000	.022	4	2
Secular Formal Group	.073	.060	1	1
Total	.107	.082	-	-
CULTURAL				
Concerts & Theatricals	.006	.000	-	-
Total	.006	.000	-	-
INDETERMINATE				
Construction Sites	.000	.141	3.5	1
Field Trips	.020	.004	1	2
<u>Sight-Seeing Trips</u>	.006	.000	2	4
Trafficways	.000	.002	3.5	3
Total	.026	.147	-	-
TRADE				
<u>Appliance Stores</u>	.000	.000*	19	20
Bakeries	.000	.001	19	15
Banks	.000	.001	19	15
Candy & Ice Cream Stores	.000	.016	19	4
Department Stores	.034	.039	3	2

VARIETIES CATALOGUE (Continued)

Variety	Proportion of Occupancy Time			
	D	ND	D	ND
Door-to-Door Sales	.010	.000	6	23
Drug Stores	.003	.010	9.5	6
Dry Goods Stores	.000	.006	19	8
<u>Farm Work Crews</u>	.007	.000	7	23
Feed Stores	.000	.001	19	15
Florists & Greenhouses	.020	.000	5	23
Food Stores Markets	.115	.065	1	1
Gasoline Stations	.002	.001	11	15
Gift Shops	.000	.001	19	15
Hardware Stores	.001	.001	12	15
Hobby Shops	.000	.001	19	15
Laundries & Cleaners	.000	.001		15
<u>Lumber Yards</u>	.000	.008	19	7
<u>Newspaper Delivery Routes</u>	.006	.000	8	23
<u>Refuse Collection Crews</u>	.044	.002	2	9.5
<u>Rental Stores</u>	.000	.002	19	9.5
<u>Rent Properties</u>	.000	.021	19	3
Restaurants	.023	.014	4	4
Variety Stores	.003	.000	9.5	23
Total	.268	.192	-	-

*Occupancy time in this variety was not of sufficient duration to register as a percentage.

varieties within each kind. Novel varieties, i.e., varieties which have not been encountered in the previous surveys of Barker and Wright (1955) and Wright (1969b), are underscored.

The findings indicate considerable variation in the percentage of occupancy time which each group contributed to the particular varieties. This variation suggests diversity of individual life-styles, which strongly influence this type of summative result in a small sample study. The two groups were also diverse in the total occupancy time contributed to each kind. Specifically, the disfigured group spent proportionately more time than the nondisfigured group in recreational, religious, organizational, and trade kinds of varieties. The nondisfigured group was proportionately dominant in service and indeterminate kinds of varieties. This latter organization of the data also probably reflects individual life-style differences. This analysis is perhaps more helpful as a reference catalogue for researchers who wish to explore behavior setting surveys in other contexts, rather than a meaningful statement of differences between the disfigured and nondisfigured groups.

Another supplementary analysis, a two-factor analysis of variance design, was undertaken which employed community size and facial disfigurement as the factors. This resulted in the formation of four groups: (a) Group 1 - Disfigured

children in small communities; (b) Group 2 - Disfigured children in large communities; (c) Group 3 - nondisfigured children in small communities; (d) Group 4 - Nondisfigured children in large communities. The groups were each comprised of four children. Thus, it was possible to determine not only the effects of community size and facial disfigurement, but also whether these factors interacted.

The three descriptive variables used were entries into settings, entered settings, and occupancy time. The data on which these variables were based were first converted to daily averages per subject. This correction was necessary because of differences in the survey period, which resulted in an inequality for the two groups defined by community size. Four dependent variables were computed from the converted data, encompassing formal settings only, informal settings only, totals of formal and informal settings combined, and proportions based on the formula: $\frac{\text{Formal Settings}}{\text{Formal Settings} + \text{Informal Settings}}$. The latter proportion permitted a comparison to ascertain the influence of formal settings relative to total settings. A total of 36 comparisons were considered (3 descriptive variables X 4 data conversions X 3 effects).

The results revealed that two of the 36 comparisons were significant at least at the .05 level. There was one community size main effect for the proportion of formal setting entries relative to total setting entries, which was

significant at the .01 level. The mean values were in favor of the large community group, indicating proportionately more entries into formal settings than the small community group. The other difference, significant at the .05 level, was an interaction effect for formal and informal settings combined in relation to occupancy time. The advantages in mean values were in favor of the small community disfigured group and of the large community nondisfigured group.

In one sense, there is the temptation to minimize these findings in that only two of the 36 comparisons (.055%) were statistically significant. However, 12 of the 36 comparisons (.33%) approached significance at least at the .20 level. A presentation of these comparisons in relation to level of statistical significance is given in Table 4.13. The number of differences which at least approached significance ($p \leq .20$) included seven in relation to community size, one in relation to disability, and four in relation to the two-factor interaction. Further, the direction of the mean differences for community size favored the large community group in all but one of the seven comparisons, the single exception being for occupancy time in informal settings. These data suggest a more pervasive influence of community size relative to disfigurement or to the community size - disfigurement interaction. There is also the indication of a greater advantage in the descriptive variables

TABLE 4.13
ANALYSIS OF VARIANCE RESULTS SIGNIFICANT
AT LEAST AT THE .20 LEVEL

Factor	N Comparisons	N of p	.20
<hr/>			
*LC X SC (A)	12	7	
D X ND (B)	12	1	
Interaction (A X B)	12	4	
TOTAL	36	12	

*LC, SC refers to Large Community and Small Community, respectively.

analyzed for the large community group in comparison with the small community group.

CHAPTER V

DISCUSSION AND SUMMARY

The purpose of this study was to assess the community adjustment of children with facial disfigurement from severe burns. The data on adjustment were derived from a behavior setting survey, a methodology of ecological psychology developed by Wright (1969b). Specifically, nine descriptive variables were evaluated in relation to children's behavior away from home and school, but within the naturalistic arena of their residential communities. An experimental group of eight facially disfigured burned children was compared to a matched, nondisfigured control group.

The data for the analyses were based upon daily records of the children's activities over a continuous 4-week period. The mothers were the data-gatherers; each was trained by the investigator prior to the study. The daily records kept by the mothers contained information given by their children in nightly interviews, supplemented by their own knowledge of the children's activities.

The study attempted to ascertain whether there were significant differences between the disfigured and nondisfigured groups along the nine descriptive variables: (a) entered settings, (b) entries into settings, (c) entries into

settings with specified companions, (d) entries per setting, (e) varieties of entered settings, (f) entered settings per variety, (g) absolute amount of time spent in entered settings, (h) hours amassed per entered setting, and (i) penetrations into various participation zones for entries into settings. For variables a-d and for variable i, a distinction was made between formal (supervised and scheduled) settings and informal (nonsupervised and nonscheduled) settings. Informal settings were further divided into three variety designations: "Home-Play Socialization", "Open Spaces", and "Trafficways". In addition to summative comparisons, this enabled a comparison for each of these variables as proportions. For example, it could be asked not only whether "Home-Play Socialization" settings were entered more often by one group compared with the other, but also whether they occurred proportionately more often.

The nine descriptive variables encompass topographic aspects of behavior and potential depth of involvement. The topographic measures explore issues ranging from frequency of experience (entries into settings) to differentiation of experience (entered settings, varieties, settings per per variety) to reiteration of experience (entries per setting). Depth of involvement includes temporal dimensions (total hours spent, hours per setting), level of participation (penetrations), and an attempt to grapple with social life (companions). The point is made that a behavior

setting survey deals with breadth and with depth of experience in the course of everyday life.

An overview of the study can be gained by ignoring the specific variables and by considering the total cluster of comparisons, excluding the supplementary analyses. The nine variables resulted in 53 separate comparisons between the disfigured and nondisfigured groups. Of the 53 comparisons, three reached statistical significance at the .05 level, which amounts to .057 percent of the total comparisons. The three significant comparisons, therefore, are no more than would be expected by chance. A different perspective emerges when one considers that 36 of the 53 comparisons were significant between the .05 and .20 level, and were distributed in a pattern which is internally consistent.

These overall data support two conclusions, at least tentatively. The first is that the behavioral topography and depth of involvement in life experience of primary school age children is neither necessarily nor overwhelmingly affected by the presence of acquired facial disfigurement. In fact, application of a strict statistical interpretation to these data is that there is no basic quantitative difference in the community adjustment of the two contrasted groups. This conclusion, which must be tempered in the light of the small sample size, still contains a message of hope to all who have direct involvement with and concern for facially disfigured burned children. They are not relegated to a life

of extreme isolation and diminished experience because they have facial scars, at least during the preadolescent years.

The second conclusion pertains to the high proportion (68%) of near differences, i.e., those between the .05 and .20 level of significance. It is these near differences which portray an internally consistent pattern. The topographic measure for frequency of experience (entries into settings) indicates a numerical advantage for the nondisfigured group in formal settings, but for the disfigured group in informal settings. The term "numerical advantage" will be used in reference to differences which at least approached statistical significance ($p \leq .20$). The basic interpretation is that the nondisfigured group was more active in behavior settings which tended to be further from home (formal settings), while the disfigured group compensated for this relative deficiency in frequency of "further from home" experience by being more active in neighborhood behavior settings (informal settings).

This theme is elaborated by examination of the topographic measures encompassing differentiation of experience, which include entered settings, varieties, and settings per variety. For entered settings, the nondisfigured group had a numerical advantage for both formal and informal settings. This represents a consistent parallel with entries into formal settings, but not for informal settings. Apparently, the greater neighborhood frequency of experience represented by

informal settings does not hold for this measure of differentiation of experience, i.e., the nondisfigured group demonstrates a greater scope of activity range than the disfigured group, which ventures into fewer total community parts.

Another variable of differentiation of experience, varieties of formal behavior settings, indicates a numerical advantage in favor of the nondisfigured group. This implies that their experience is more heterogeneous, i.e., that the community parts they visit are in themselves more differentiated than for the disfigured group.

A final variable of differentiation of experience is formal settings per variety, which demonstrates a slight but statistically nonsignificant advantage in favor of the disfigured group. For this measure of dispersion in differentiated experience, the numerical outcome is essentially equal between the two contrasted groups and noncontributory to any pattern. It is likely that a longer survey period would be required to elucidate this particular variable.

The variable which focuses upon reiterativeness of experience is entries per setting. A numerical advantage emerges for the nondisfigured group for formal settings, and a statistically significant numerical advantage for the disfigured group for informal settings. Thus, the reentrance rate is numerically greater for the nondisfigured group in formal settings, but greater for the disfigured group in

informal settings at the level of statistical significance. This latter finding is a logical outcome: The disfigured group had a numerical advantage for entries into informal settings, while the nondisfigured group had a numerical advantage for entered informal settings.

The data for frequency, differentiation, and reiteration of experience support a second conclusion: The differences in undifferentiated frequency of total experience between the disfigured and nondisfigured groups are unimpressive, but a pattern is apparent when the kinds of experience are examined. By and large, the disfigured group is more prone to seek more limited experience in informal settings closer to home. The nondisfigured group is the more adventurous, roaming further from home, and exploring more facets of the community horizon. Perhaps security for the disfigured child means adhering to the familiar and the tried and true. (Alternatively, it can be postulated that personal and interpersonal risks for the disfigured child are diminished when he encounters the known and informal aspects of his environment, rather than embracing new, formal community parts which, to him, may represent the unknown, and therefore the dangerous.)

The remaining variables to be considered dealt with depth of involvement. These included the temporal dimensions of total hours spent and hours per setting. The total hours spent in formal settings suggests a numerical advantage

to the nondisfigured group, while the disfigured group manifests a numerical advantage for informal settings. Once again, there is a logical outcome following from entries into settings, which indicated a numerical advantage for the nondisfigured group in formal settings, but for the disfigured group in informal settings. Thus, time cumulation in behavior settings favors the nondisfigured group for formal settings, and the disfigured group for informal settings.

The second temporal dimension, hours spent per setting, yields a numerical advantage for the disfigured group in both formal and informal settings. This finding for occupancy time is considered to represent no contradiction with previous results, which have indicated a numerical advantage for the nondisfigured group in variables concerning formal settings. The relative deficiency in breadth of experience in formal settings for the disfigured group is compensated for by spending more time per setting, thereby maximizing the depth of experience. This suggests a curious balancing effect in the panorama of total behavioral experience for the disfigured group in comparison with the nondisfigured group.

Another area of depth of involvement in behavior settings is level of participation. The salient issue is whether one group has a relative numerical advantage in the various penetration zones, i.e., whether one group is

proportionately more often a bystander, customer, special participant, etc. The proportions were calculated on the basis of penetrations per entries into settings; absolute numbers of penetrations are influenced by numbers of entries into settings, which differ in numerical advantage for the formal-informal settings dichotomy. The results of this analysis indicate no numerical advantage in any of the penetration zones for either group in formal settings. Thus, the disfigured child may not frequent as many formal settings numerically as the nondisfigured child, but when he does, he is equally likely to be a bystander, customer, special participant, or whatever. When the disfigured children entered formal settings, they did not participate at levels which were different from nondisfigured children.

The penetration zones for informal settings were designated merely as active, passive, or indeterminate. A proportionate numerical advantage was found in favor of the nondisfigured group for the "passive" designation, and for the disfigured group for the "indeterminate" designation. This suggests that the nondisfigured group may engage in more sedentary informal activities, and that the recordings for informal settings by the disfigured children's mothers were more ambiguous than for the nondisfigured children's mothers. It is conjectured that this latter finding may reflect a discrepancy in educational level, with the mothers of the disfigured children having an average of 1-1/2 years less

education than the mothers of the nondisfigured children.

A final area of depth of involvement in behavior settings is companions per entry into settings. The basic question is whether one group is proportionately more often escorted by one kind of companion during entries into settings than the other. For formal settings, two of the companion designations (relatives and siblings) yielded a numerical advantage in favor of the disfigured group, while the "alone" designation was in proportionate numerical favor of the nondisfigured group. These data are difficult to conceptualize on any basis other than that the disfigured group demonstrated a slightly greater need to have an escort — perhaps they were less comfortable entering formal settings alone. This would be in line with a tendency for the disfigured group to more often seek security in their extra-neighborhood ventures by moving with known escorts.

For informal settings, two of the companion designations (mother and father) showed a proportionate numerical advantage in favor of the nondisfigured group, while two other companion designations (relatives and friends) manifested a proportionate numerical advantage in favor of the disfigured group. It is considered that these data are noncontributory to any pattern consistent with the inter-variable relationships previously discussed.

The three variables dealing with temporal dimensions, penetrations, and companions, which relate to depth of

involvement in behavior settings, appear to contribute less to illuminating life-style differences between the two groups than the other descriptive variables. An exception is the temporal dimensions, which indicate that the disfigured group compensates for breadth of total experience by tending to spend proportionately more time in both formal and informal settings, thus maximizing depth of experience. The penetration variable is essentially noncontributory to life-style differences between the two groups, except to emphasize that the disfigured group are not shrinking violets who avoid the limelight or other, more active, modes of participation when they enter behavior settings.

The companion variable was originally conceived as an important source of data for inferring concepts such as rejection, overprotection, and security-seeking, based upon proportionately greater participation levels with significant others by the disfigured group. This did not happen; the investigator is left instead with only a slight indication of greater security-seeking by the disfigured group in their entries into formal settings, and an uninterpretable array of near differences, alternately favoring one group or the other, for informal settings. This variable emerges more as a statement of what might have been rather than as what actually was.

The pattern of near differences discussed in this study

deserve an interpretation irrespective of the content. One must wonder if they are believable, i.e., whether they would have obtained clearer focus had more children been included in the survey, or if the survey period had been extended. Further research should, perhaps, involve larger samples. An alternate view is that this study has discerned a clear relationship which makes intuitive sense, and that the near differences obtained during the preadolescent years for the disfigured group will be manifested with greater clarity during the adolescent years. This also is an issue to be resolved by further research.

A supplementary analysis was performed which presented the percentage of total occupancy time which each group contributed to each individual variety. In addition, each percentage was ranked according to the kind of variety it represented, i.e., recreational, religious, service, organizational, cultural, indeterminate, or trade (pp. 71-74). These findings indicated considerable variation in both the percentage of occupancy time which each group contributed to the particular varieties, and in the proportion of time spent in the different kinds of varieties. It is considered that this analysis shows that the individual lifestyles of the subjects were diverse, i.e., the time contribution of a particular individual to a particular variety is highly influential in a small sample study.

An additional supplementary analysis was undertaken to

assess the influence of community size, facial disfigurement, and the interaction of these two factors to selected variables. These included entries into settings, entered settings, and occupancy time. Four dependent variables per each descriptive target were distinguished for formal settings only, informal settings only, total of formal and informal settings combined, and proportion of formal settings relative to totals of formal and informal settings combined. A two-factor analysis of variance design was employed to make this determination. Only two of 36 comparisons were statistically significant at the .05 level. One difference indicated more proportional entries into formal settings for the large community group compared with the small community group. The other statistical difference was an interaction effect for formal and informal settings combined in relation to occupancy time. The advantages in mean values alternately favored the small community disfigured group and the large community nondisfigured group.

The basic message of this analysis is perhaps more strikingly shown by examination of the 12 of 36 comparisons which approached significance ($p \leq .20$). Once again, a pattern is suggested. Of the 12 differences which at least approached statistical significance, seven were in relation to community size, one was in relation to disability, and four were in relation to the two-factor interaction. The direction of the mean differences favored the large community

group in all but one of the seven community size comparisons. These data suggest a more pervasive influence of community size relative to disfigurement or to the community size-disfigurement interaction, and a numerical advantage for the large community group in comparison with the small community group.

The total analyses performed in this study affirm the complex determinants of human behavior. The patterns which have been discussed strongly suggest that the presence or absence of facial disfigurement does exert an influence on the individual in his everyday community life. There are, however, yet other factors which determine one's participation, including both community size and the individual's life-style. It would seem that opportunity, and therefore involvement in life, is mediated by factors which reflect the individual and his extraindividual milieu.

This study does not purport to generalize about all children who have facial disfigurement from severe burns. The population upon which the study was based is, in fact, a privileged population of this total. Each child had sufficient intellectual ability to maintain an appropriate academic standing. Further, the population had culturally defined stability in their home environments, i.e., both a mother and a father were present in the home, they had resided in the same home for 1 year prior to the study, and so forth.

In comparison with the study by MacGregor, Abel, Bryt, Lauer, and Weissman (1953), this study presents a more hopeful, less bleak childhood for facially disfigured persons than their research indicated. Similar to the other ecological studies of handicapped preadolescent children (Fawl, 1963; Schoggen, 1963), the findings suggest the irrepressibility of this age group despite serious physical deviance.

AFTERWORD

The unit of analysis in this study has been the group rather than the individual. The mode of analysis has been statistical based upon a methodology of ecological psychology, not basically empirical and inferential.

Exclusively, ecological psychology has been ahistorical; it is difficult for analysis of human behavior in naturalistic habitats to be otherwise. However, a primary tenet of dynamic psychology is that historical events in the life experience of the individual strongly influence later behavior. A comprehensive classification of historical antecedents in the lives of these groups is neither feasible nor in accordance with the purpose of the study. Total omission of the past imposes certain disadvantages, such as negating an understanding of why some of the reported behavior has occurred. For example, it was reported that Sally Boudreau* visited her grandmother during each weekend of the survey. According to her parents, they permit this because Sally is greatly valued by the grandmother and because the grandmother is emotionally intolerant of the other family members. They portray the grandmother as a lonely, demanding, and embittered person dating from the burn accident several years ago in which her only child, Sally's mother, was killed, and which permanently disfigured Sally, her only grandchild. The father was subsequently remarried.

Other historical events dating from the burn accident are salient in the other members of the experimental group which describe tragedy and human suffering of great proportions. Darrell Wallace and his brother were severely burned during their first day of residence in a new home, while a playmate was killed. Jill Stuart lost a year of school because her protracted hospitalization occurred during most of an academic session. The academic progress of her four siblings ranged from marginal to failing while her mother stayed in Galveston during the initial hospitalization to be with her critically ill daughter.

These personal glimpses into the past of some of the disfigured group are included in order to formulate two additional conclusions. The first is merely to indicate that the individual perspective is easily lost when the focus is upon the group. The second is that the statistical results, however viewed, cannot begin to account for or to capture the resiliency of the human organism.

*Fictitious names were used to preserve the anonymity of the participants.

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APPENDIX

ACTIVITIES AND COMPANIONS SURVEY

Shriners Burns Institute
Galveston Unit

Log Book For

ACTIVITIES AND COMPANIONS SURVEY

GUIDE

Procedure

The purpose of this survey is to get information about the activities and companions of a group of children who have been treated at the Shriners Burns Institute; Galveston, Texas. Each of these children will be matched with another child from his community. All children in this survey are between 6 and 11 years of age.

As near to bedtime as possible, you (the child's mother) are to interview your child about his activities and companions for that day when he was not at home or at school. It is estimated that, on the average, the daily interview will take about 5-10 minutes. The period of daily interviewing will be for four consecutive weeks and it should include Saturdays and Sundays during the four-week period.

Definition of Terms

Activity means the main thing the child does in a particular place at a particular time. A "place" is referred to as a setting. A setting will mean just what it means in everyday life, as when we refer to a drugstore, a group meeting, a vacant lot, a paper route, or birthday party as a setting for this or that sort of activity. The activities away from home and not at school for each day are to be listed in order from first to last. Any activity that takes

place repeatedly is listed as many times as it occurs.

Keep in mind that we want your child's activities in his community. We do not need to know what he does on the way to any place unless the child stops somewhere and does something besides just "being on the way." How he gets places isn't important for our purposes, just what he does when he stops somewhere. And no matter how interesting the activities are AT HOME, you should not list them. An exception is when your child is at a special meeting in the home, such as a Cub Scout meeting. List each store entered separately on a shopping trip. Also, list each neighbor's yard separately, if possible, when your child plays in the neighborhood. This detailed information will tell us about how your child gets around.

Companions means the person or persons your child does things with. Sometimes your child will do things alone, and we want to know this also. Pets are counted as companions, but always make this clear in the record.

What to Record

It will be helpful for you now to take a look at the examples given from the standard form on the last page of this guide which will be used in recording the activities and companions for each day. Always write in the name of your child, the date of interview, and the day-of-week (Monday, Tuesday, etc.) when the interview takes place in the spaces provided. Next, notice the categories below this

at the top of the page. Under the category of "Things Done" we want you to record each activity or main thing done in such a way as to indicate what part your child played in the setting. Much of the time, of course, your child will just "go along" with others or with what is happening or just play with friends. From time to time, though, your child may buy something at a store, sing a solo at a meeting, help a neighbor with chores, or even act as "Den Leader" at a Cub Scout meeting. Usually a brief phrase or two will state the main things done in such a way as to point out what part he played in the setting. There are several examples on the model record sheet.

Under the category "Where," we want to know exactly what the place was. For example, the record says A & P Grocery on 23rd Street, not just grocery store. One reason for this is that the survey is concerned with the different settings of a given kind children enter in their communities. Please identify each home setting by the first as well as the last name of the homekeeper if you know the first name. If your child goes to another city for some activity, always record that city by name.

Notice that "When" each activity took place is recorded as morning (M), noontime (N), afternoon (A), or evening (E). Next, notice that "How Long" your child spent in the setting for each activity is recorded. Here, of course, the

best you can do is to make good estimates. Your estimate should include the abbreviation min. for minutes and hr. for hours.

Notice the last category which asks "With Whom" the activity was done. Identify your child's companions by whichever of the following words is appropriate to that activity: friend, friends, adult, or adults. Also, try to state how many friends or adults are involved when there is more than one. Here again, sometimes the best you will be able to do is to make good estimates. If the companion was a member of your family, please identify that person such as father, brother Bob, or whoever.

You will see two other things at the bottom of the record sheet. One of these is:

Completeness Rating: 1 2 3

This amounts to a scale of three points. It is applied to the record as a whole for each day. Encircle 1 if you think that the record covers fully the activities and companions during the day, 2 if you think the record is moderately complete, and 3 if you think that the record is quite incomplete. Only best guesses can be made here, but they will help us to evaluate the thoroughness of the reports made by your child.

The final thing is:

Length of Interview _____

Here you are to record the time it takes you to do the interview in minutes. Perhaps you might keep a watch or clock within seeing distance. Your best guess will be fine in case you lose track of the time, however.

How to Interview

When you can find a spare moment near to your child's bedtime, sit down with him and have a pencil and one of the enclosed record sheets ready. You might start off like this, although this wording does not need to be followed exactly: Today I am interested in what you did while you were not at school. What was the first thing you did this afternoon when you left home? After this question has been answered, you can ask: Then, what did you do? -- and so on through all of the time spent during the day when your child was away from home and not at school. At the close of the interview, ask: Can you think of anything that happened today that you forgot to tell me?

Returning the Record Sheets

Your supplies include a record sheet for each day to be covered. They include also a pack of addressed and stamped envelopes, one for each week of the survey. On Monday of each week, please mail all the sheets filled out during the preceding week. It will help us to keep track of the records if you write your name and address on the envelope.

Finally, if you have any questions about anything at

any time, no matter how unimportant you may think them to be, please do not hesitate to call me collect at either of the following phone numbers:

Your cooperation is greatly appreciated. I can assure you that your cooperation will give needed and valuable information about the behavior of children.

(Signed)

ACTIVITIES AND COMPANIONS SURVEY Name of Child _____

Shriners Burns Institute;
Galveston Unit

Date of Interview _____

Child Behavioral Studies Project Day of Week _____

EXAMPLES

ACTIVITY	WHERE	WHEN	HOW LONG	WITH WHOM
Went to Gro: bought eggs	A&P Grocery 23rd St.	M	15 min.	Alone
Looked at books	Harper's Bookstore	N	10 min.	Friend
Piano lesson	Mrs. Ward's home	A	30 min.	Alone
Went to dress shop: just looked	Strand Style Shop	A	13 min.	Mother
Brownie meet- ing: collec- ted dues	Jones home	A	1 hr. and 10 min.	11 Brownie friends & Mrs. Jones
Played in vacant lot: game of football	Corner of Elm & 12th	A	45 min.	6 friends from neigh- borhood
Attended church party	St. John's	E	1 hr. and 50 min.	20 adults and 30 children
Went to Houston: vi- sited Aunt Alice	Houston - Aunt's home	A	3 hr.	Father, mother and sisters Ann & Gail
Attended movie	Star Theater	A	2 hr.	Brother Jim
Went to nei- ghbors to see new puppies	Cox home	A	20 min.	2 friends & sister Betty

Completeness Rating: 1 2 3 Length of Interview _____

