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THE CRITICAL NATURE OF THE POST-PARTUM PERIOD
IN THE HUMAN FOR THE ESTABLISHMENT
OF THE FATHER-INFANT BOND

by

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A THESIS

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CHAPTER I

Introduction

In observing the behavior of a mother rhesus monkey and her newborn, in the Central Park Zoo in New York City, Dr. Lee Salk became aware of the fact that the monkey showed a marked tendency to hold the newborn on her left side, frequently with it's ear pressed against her heart. In an attempt to systematize these observations, Salk arranged to visit the zoo three times each day as close to random as possible. Of the 42 observations made, he found the newborn was held on the left side 40 times and on the right side only twice.

Following his experience with the monkeys, Dr. Salk decided to see whether the human mother had similar tendencies. He observed 287 human mothers with their newborn babies at the Elmhurst Hospital in New York City. In so doing, he found that among the left handed mothers (n=32) 78.1% held their babies on the right side. Among the right handed mothers (n=255) 83.1% held their

babies on the left side and 16.9% held their babies on the right side.

It seems apparent from these results that both left and right handed mothers have a tendency to hold their babies on the left side, close to the heart, as was the case with the rhesus monkey observed. Since this tendency seems automatic and without conscious awareness on the part of the mother, one must question the possibility that this is an instinctive response evolved from a need on the part of the infant to experience continuation of the maternal heartbeat rhythm, a familiar sensation from intrauterine life (Salk, 1973).

When asked what his observations might mean, Salk for some time was unable to claim anything more than they were simply naturalistic observations not previously reported in scientific literature. Then he noticed some maternal behavior that seemed to be at variance with the data he had accumulated. Of the mothers who had brought their children to the follow-up clinic for premature infants at the New York Hospital--Cornell Medical Center, Salk found an unusually large number held their babies on the right side (Salk, 1973).

Although many factors might cause mothers of a premature infant to behave differently from mothers of a full-term infant, one factor, prolonged post-partum separation may be of particular significance. Immediately after

birth, the mother of a premature infant has been separated from the baby for a prolonged period, whereas, the mother of a full-term infant has early contact with her baby. A large-scale study was undertaken by Salk to find out if prolonged post-partum separation of the mother and her infant had an effect on the way in which the mother held her baby. Since it had already been observed that a mother of a premature infant showed some departure from the tendency to hold the baby on the left side, it seemed that a logical index would be the side on which she held her child (Salk, 1970a).

Salk's experimental group consisted of 115 mothers who had experienced prolonged separation from their infant after birth. Twenty-four hours or more was arbitrarily set as the definition of prolonged separation. During this period, the mother did not hold her infant at all. Most of the mothers in the experimental group had a premature baby (gestation period less than 38 weeks). Some infants in the experimental group, however, were full-term and had been separated from their mothers for medical reasons. The control group of 286 mothers was selected at random from mothers who came to the well-baby clinic for regular baby checkups. None of these mothers had experienced prolonged

separation from their infants, and all had handled their infants during the first 24 hours after birth (Salk, 1970a).

The data strikingly confirmed the earlier results. Mothers in the control group who had experienced no post-partum separation showed a preference for holding their babies on the left side (77%). In contrast, mothers who had experienced prolonged post-partum separation did not show a side preference: 53% placed the baby on the left side and 47% on the right. From these results, it appeared to Salk that prolonged separation might alter the way in which the mother held her infant. Moreover, Salk concluded the results suggested that the time immediately after birth was a critical period during which the stimulus of holding the infant released a certain maternal response (Salk, 1973).

If such an effect is caused between a mother and her infant because of separation it would be the general belief that this behavior (holding) might also signal an interruption in a so called "Biological relationship" between a father and infant. This perhaps could even greatly be attributed to the general practice in most hospitals of separating fathers and their newborns until dismissal from the hospital.

While men and women are becoming less different or perhaps different in a new way in the roles they perform,

there is a need to try and discover the biocultural potential for both sexes. Individuals should be allowed to discover and realize their own biocultural potentials, regardless of their assigned sex (Mitchell, 1974).

The biological basis for assigning social roles brings up a serious point. Males and females have been, are and will be different, but this difference is the result of the inextricably intertwined processes of biology and culture. Many believe that the theory that men's and women's roles differ solely because of their biology is false as is the hypothesis that human roles are only determined by culture. On the basis of some form of biological imperative, mothers have often been assigned the sufficient role in rearing an offspring. Perhaps the fathers' role should be viewed as just as necessary.

Statement of the Problem

The primary purpose of this study was to determine if fathers who had been separated from their newborn infants differed in the way in which they hold their babies from those fathers who had not been separated from their infants.

More specifically, this study examined the difference in fathers' holding behavior relating to:

1. On which side of the body the fathers held their infants.
2. The length of time from birth until the fathers first held their infants.
3. Did those fathers who were left handed hold their babies on a different side of their body from those fathers who were right handed?
4. Whether the fathers who had children previously held the new infant in a different manner than those who were fathers for the first time.

Subjects

The subjects of this study were 30 fathers of infants born during the months of April and May, 1975. Fifteen of the fathers made up Group A whose infants were born at St. Vincent's Hospital in Birmingham, Alabama. They were involved in rooming-in and the fathers were allowed to hold their infants during the stay in the hospital. The second group, Group B, was composed of fathers whose infants were born at Shelby Memorial Hospital in Alabaster, Alabama or Bessemer Carraway Hospital in Bessemer, Alabama. Because of hospital regulations, the fathers were not allowed to hold their infants until their dismissal from the hospital.

Method of Data Collection

Individual observations were made by the investigator of the father and the manner in which he held his infant, either on the left side of the body or the right. These observations were made a few days after the birth of the child in the homes of the parents. Any time after the first 24 hours the desired information was observable. A brief questionnaire was also administered similar to one used by Dr. Lee Salk to validate the results of the observations.

Procedure

The responses of the fathers were categorized based on categories suggested by Salk (1970) in a similar study. The reactions of right handed and left handed fathers, fathers with previous children, and fathers which had experienced post-partum separation were tabulated separately for each descriptive category.

The questionnaire administered to the fathers was similar to one used by Dr. Salk in his study of mothers and their holding behavior. Its purpose was to obtain background information necessary for the study such as date, time at which the father first held the infant, handedness

of the father, and time at which the father first held any previous children. Sometime following the administration of the questionnaire each father was asked to pick up his child and hold it as if to comfort it. The investigator made sure that each infant was lying in a vertical rather than horizontal position as not to influence the father as to which side to hold the infant.

Analysis of Data

The holding behavior of fathers was recorded in terms of frequencies and reported as percentages of response. In the analysis of the data, several biographical factors served as the basis for comparisons of the holding behavior of fathers who had experienced prolonged post-partum separation (Group B) and fathers who had not experienced prolonged post-partum separation (Group A).

Limitations of the Study

This study was limited to fathers of 15 infants born at St. Vincent's Hospital in Birmingham, Alabama and fathers of 15 infants who were born at Shelby Memorial Hospital in Alabaster, Alabama or Bessemer Carraway Hospital in Bessemer, Alabama.

Some unexpected difficulty occurred in obtaining the subjects for Group B, the fathers which had experienced prolonged separation. In order to receive permission to interview patients in the hospitals in which fathers were separated from their infants it was necessary to discuss the study with the physicians in charge. It was impossible to make appointments with physicians in several of these hospitals without waiting several weeks. When permission to use one particular hospital was finally obtained, it was found that the number of deliveries at that hospital was extremely few.

The number of illegitimate births was very prevalent at some hospitals. These births could not be used because of the unavailability quite often of the fathers.

Definition of Terms

For the purpose of this study, the following terms needed clarification:

1. Biocultural potential was defined as the potential an individual, male or female, can reach as a result of the intertwined processes of biology and culture (Mitchell, 1974).
2. Certain maternal response was used by Salk (1970) as an operational definition referring to the

left-side-preference infant holding behavior of the mother.

3. Biological relationship was a theoretical construct signifying an unobservable bond presumed to exist between a mother and her infant at birth, and which if uninterrupted by the advent of a prolonged post-partum separation of the mother and infant, provides the mother with instinctual recognition that her infant has a continuing need to experience the maternal heartbeat rhythm (Salk, 1970).
4. Prolonged post-partum separation meant that the fathers did not hold their infants at all during the first 24 hours following delivery.
5. Separation was used throughout the study interchangeably with term "prolonged post-partum separation".
6. Holding behavior was defined as the side of the body against which the father held his infant.

CHAPTER II

Review of Related Literature

Introduction

Dr. Lee Salk, Clinical Professor of Psychology and Pediatrics, Cornell University Medical College, and Director of the Division of Pediatric Psychology of The New York Hospital--Cornell Medical Center, was stimulated by a series of random observations on poetry and anatomy to pursue what may have seemed to be an unlikely project for someone who works in the behavioral sciences. As a psychologist he had learned that the hypothalamus, a small region at the base of the brain, plays an important role in the expression of emotions. Yet, he was constantly impressed by the fact that poets, lyricists, and other creative writers from all periods in history and from all parts of the world chose a different part of the anatomy, the heart, as the site from which deep feelings originated (Salk, 1970a). References to the heart in connection with the expression of love are of course found not only in poetry, literature,

and song but also in everyday language: "I love you from the bottom of my heart," "My heart longs for you," and "I am heart-broken." When professional knowledge is applied to these expressions ("I love you from the bottom of my hypothalamus," or "My hypothalamus longs for you,") the results somehow lack a true romantic ring.

Dr. Salk's findings with the rhesus monkeys at Central Park Zoo stimulated thought that perhaps "close to a mother's heart" is more than just an expression and the phrase could have a basis in behavior and represent a psycho-biological process. A survey of scientific literature revealed no studies concerned with the problem so Dr. Salk undertook an investigation designed to answer the following question: What does a human mother do when she is presented with her newborn infant (Salk, 1973)?

Of 255 right handed mothers observed the first four days after they had given birth, 83% held their babies on the left side of their chest or on their left shoulder and 17% held the babies on the right side. Of 32 left handed mothers observed, 78% held the babies on the left side and 22% on the right. All the deliveries had been normal, and the mothers had access to their infants soon after birth (Salk, 1970a).

When asked what his observations might mean, Dr. Salk was at a loss for some time to claim anything more than they were simply naturalistic observations not previously reported in scientific literature. Then he noticed some maternal behavior that seemed to be at variance with the data he had accumulated. Of the mothers who had brought their children to the follow-up clinic for premature infants at the New York Hospital--Cornel Medical Center, an unusually large number held their baby on the right side (Salk, 1973).

Although many factors could cause mothers of premature infants to hold their infants differently from mothers of full-term infants, one factor seemed to be the most likely cause: immediately after birth the mother of a premature infant is separated from the baby for a prolonged period, whereas, the mother of a full-term infant has early contact with her baby. A large-scale study was undertaken to find out if prolonged post-partum separation of the mother and her infant had an effect on the way in which the mother held her baby. Since it had already been observed that mothers of premature infants showed some departure from the tendency to hold the baby on the left side, it seemed that a logical index of the

mother's response would be the side on which she held her child (Salk, 1970a).

Dr. Salk's (1973) experimental group consisted of 115 mothers who had experienced prolonged separation from their infants after birth. Twenty-four hours or more was arbitrarily set as the definition of prolonged separation. During this period the mother did not hold her infant at all. Most of the mothers in the experimental group had premature babies (gestation period less than 38 weeks). Some infants in the experimental group, however, were full-term and had been separated from their mothers for medical reasons. The control group of 286 mothers was selected at random from mothers who came to the well-baby clinic for regular baby checkups. None of these mothers had experienced a prolonged separation from their infants, and all had handled their infants during the first 24 hours after birth (Salk, 1970a).

The data strikingly confirmed the earlier results. Mothers in the control group having experienced no post-partum separation (77%) showed a marked preference for holding their babies on the left side. In contrast, the mothers who had experienced prolonged separation did not show a side preference: 53% of these mothers placed their babies on the left side and 47% on the right. From

these results, Salk concluded that it appears that prolonged separation does alter the response of mothers to their babies. Moreover, the results suggested that the time immediately after birth is a critical period during which the stimulus of holding the infant releases a certain maternal response (Salk, 1973). These findings may have some resemblance to the phenomenon of imprinting on birds and mammals. In several studies it has been found rhesus monkey infants can be profoundly disturbed by a period of separation from their mothers (Spencer-Booth & Hinds, 1967; Seay & Harlow, 1965; and Seay, Hansen, & Harlow, 1962). Other studies have shown when a lamb or a kid is separated from its mother immediately after birth the mother seems to lose her capacity to differentiate her own young from others and she may reject her offspring altogether. But if the two stay together and the mother has a chance to lick her newborn, she will then be able to identify it in a large flock even after a long period of separation (Hersher, Richmon, & Moore, 1963 and Beach & Jaynes, 1954).

These observations suggest that a critical period may exist for the establishment of a bond between a mother and her newborn. If this interval passes without the necessary contact, the bond is weak, the newborn loses the benefit of this vital interchange, and its chances for survival to

full maturity are lowered. The mother loses something too. She is less inclined to protect her young from predators and will fail to provide the sensory stimulation through touching, hearing, licking and visual experience that is also necessary for later learning (Beach & Jaynes, 1954).

One must always be cautious about extrapolating animal data to human behavior. Nevertheless, some striking studies (Bowlby, 1958) have been made of human infants cared for in foundling homes. These children were well cared for physically. They were cleaned and fed and received adequate medical attention. But they were not handled or played with or otherwise stimulated--and the mortality rate among them was inordinately high during the first year of life. They were highly susceptible to infection, appeared depressed and lethargic, showed little interest in their surroundings, and did not look anyone in the eye. They would rock back and forth for hours examining their own fingers and bodies as if they had given up on the outside world. These children are often described as "good" babies because they play by themselves, make no demands on anyone, and do not cry. They have, in effect, withdrawn from the world of people, and have probably been permanently damaged (Bowlby, 1958).

Observations of mothers with their newborn infants show that animal studies are not altogether inapplicable with humans (Salk, 1970b). There is mutual need for nearness and stimulation. There is undoubtedly, according to Salk, a very intricate set of biochemical changes that release built-in evolutionary behavior patterns. The mother is highly sensitive to certain events, particularly the presence of her baby. This raises questions about the wisdom of the common practice of separating mothers from their babies right after delivery in most hospitals. She feels a powerful, instinctive desire to touch her baby, to hold and talk to him. As the child grows older, the mother almost always smiles back with great pleasure whenever her baby smiles, and soon the baby learns from responses (Salk, 1970b).

The notion that a mother placing her infant near her heart is in concert with a need on the part of the infant seems more plausible if one realizes that the heartbeat of the mother is the first and most prominent sound heard by the infant before birth. In the uterus, the infant is constantly exposed to the beat of the mother's heart, which is transmitted by way of the aorta into the amniotic fluid. During this time, the infant is automatically fed, supplied with oxygen, kept at a constant temperature and shielded

from the kind of stress it encounters after birth. After birth, the rhythmical sensations cease and are replaced with unfamiliar, dissonant, non-rhythmical sounds (Salk, 1960).

Perhaps during the period in the uterus the infant builds an association between the rhythmical heartbeat and the tension-free state, or perhaps there is an imprinting of the heartbeat rhythm so that similar sounds later in life have a functional connection with the original experience (Salk, 1973).

To find out if a mother's tendency to hold her baby near her heart is congruent with the baby's need, Dr. Salk set up an experiment in which newborn infants were exposed to a recorded normal adult heartbeat sound. The infants, born in a hospital in New York, were placed in a nursery immediately after birth and were kept there for four days except for normal feeding by their mothers every four hours. The sound of an adult's heartbeat (72 beats per minute at 85 decibels) was presented without interruption day and night in the nursery.

At the outset of the experiment it was intended for control purposes to expose another group of newborn infants to rhythmical sounds other than a normal heartbeat. When these sounds (for example a heartbeat at 128 beats per

minute) were played, however, there was an immediate increase in the crying and restlessness of the infants. These reactions were also observed when a constant hissing noise accidentally developed in conjunction with the normal heartbeat sound. Because of the critical influence of early infantile experience on later behavior, the use of sounds other than normal heartbeat were discontinued. For another control group, another group of infants were monitored in the same nursery without exposing them to the heartbeat sound. There were 102 infants in the experimental group and 112 in the control group.

The focus was placed on weight change, food intake, and amount of crying. A tape recorder with a microphone was placed in the nursery. A timing device turned on the recorder for 30 seconds every seven minutes; this provided a sample of nursery sounds throughout the experimental and control phases of the experiment.

Because weight change after birth is affected by the procedures used in delivery, weight change in the infants was measured from the day following birth to the fourth day. It was found that 70% of the infants exposed to the heartbeat sound gained weight and that only 33% of the control infants did so. In terms of actual weight gain, the heartbeat group showed a median gain of 40 grams; the

control group showed a median loss of 20 grams. There was no significant difference in food intake between the two groups.

The crying measure consisted of the percentage of time during which one infant or more could be heard crying on the tape recordings. There was crying 38% of the time in the heartbeat group of infants; in the control group one infant or more cried 60% of the time. On the average, there were nine infants in the nursery at any one time. These results suggest that newborn infants are soothed by the sound of the normal adult heartbeat. Since there was no difference in food intake between the two groups, Salk (1960) concluded that it was likely that the weight gain for the heartbeat group was due to a decrease in crying.

In an independent study, I. Hyman Weiland (1964), of the University of Southern California, observed a large number of mothers holding their infants while they were at a well-baby clinic. He found a definite preference for holding the infant on the left side. As a control, he collected observations of shoppers carrying packages approximately the size of a baby. He noted on which side the shoppers held the packages as they left a supermarket that had automatic doors, so that it was not necessary for the person to free one hand to open the door. Of the 438

adults he observed, exactly half held the package on the left and half on the right. No preference for one side or the other was shown by either sex. Weiland then postulated that holding a package does not arouse anxiety but holding a baby does.

To find out if there was a left side preference for holding an object when a person was in a state of anxiety, Weiland and his colleague, Zanwil Sperber, tested patients undergoing dental therapy. Most people admit to being anxious when they go to the dentist, and Weiland and Sperber decided to see how a person held a five-inch rubber ball while being treated. Each patient was told: "One is less aware of pain when he concentrates on some activity such as pressing an object between his forearm and chest. We are currently investigating a number of such objects to determine if size, texture, shape, or consistency are of importance." The results showed that patients chose a left side placement significantly more often than would be expected by chance. This was true even though the dentist was left handed and had to work on the patient's left side, which made it slightly more awkward for the patient to hold the ball toward the left (1964).

In another study, Weiland and Sperber (1964) found that when adult women were asked to hold a small pillow

against their chest, they showed no side preference. When they were told to imagine that they were holding an endangered infant, however, more women tended to hold the pillow on the left side. Additional studies, which focused on more specific elements of the subject's emotional state, led Weiland and Sperber (1964) to conclude that it was not anxiety alone that produced a left side preference; after all, imagining that the object was a baby gave rise to similar behavior. Their results appeared to support the notion that anxiety affects such behavior and show a special emotional effect that a baby has on a human adult.

Father-Child Relationships

In contrast to the emphasis on the mother-child relationship, there has been relatively little attention given to the impact of the father-child relationship on personality development. There is much evidence that the family in the western industrial society has been matri-centric, and the father's primary significance has frequently been viewed simply in terms of his ability to provide economically for his family (Biller, 1971). Throughout most of the first half of the twentieth century, child rearing was seen mainly as the mother's responsibility and the father was not expected to be an important person

in the socialization process (Gorer, 1948; Kluckhohn, 1949). The modern father has been relegated to a second class role in the family (Biller, 1971). His importance has been ignored not only by society but until recently by the social scientist. Thus, the contemporary father, often uneasy with his job, ignorant of its importance, and subject to profound social pressures, has resorted to the accumulation of material goods, lessened involvement at home, and often the abandonment of his family (Biller & Meredith, 1972).

It has been assumed that men are not particularly interested in being with their children. Some writers have pictured the American father as having a "don't care" attitude toward child rearing. Another impression given in literature is that fathers have become relatively weak and inferior to mothers (Erikson, 1963; Brenton, 1966; Ruitenbeek, 1967). By staying at work all day and by leaving child rearing to wives and others, the fathers were said to have abdicated their "place" in the family. These authors gave the impression that children no longer turned to fathers because fathers were just not interested. English and Foster (1962, p. 72) stated that fathers usually do not like to be around children of elementary school age. Too often, said the authors, the father feels

that he can turn his awkward, "in-between" child over to the school teacher, youth leader, and others for training.

Such an impression may have been an accurate one in the past. However, the concern of research done by Hawkins (1972) was whether fathers of a specific group of children could still be described as having a "don't care" attitude toward child rearing. It was concluded that these fathers of first grade children had a high degree of interest in knowing more about the growth and development of their first grade children, although the fathers may not have known where to go for such information. Interests in learning about child rearing were not related to age, experience as a father, sex of the child, education, occupation, or income.

Mothering has been considered to be a central facet of the feminine role, but fathering has not been included as an essential function of the masculine role (Benson, 1968; Nash, 1965). Although men have been viewed as heroes in many different contexts, the male in the fathering role has frequently been pictured as ineffectual (Birdwhistell, 1957; Foster, 1964).

There was also a paucity of scientific inquiry into the nature and consequences of fathering until quite recently. For example, a review of American research

between 1926 and 1956 revealed only 11 publications pertaining to the father-child relationship but 160 concerned the mother-child relationship (Peterson, et al., 1959). The lack of recognition of the importance of the father's role was also evidenced in nineteenth century child-rearing literature in Europe and the United States (Nash, 1965; Sunley, 1955). Surveys of literature revealed that less than 10% of the studies on parent-child relationships took into account the father's role. This ratio exists in spite of the statistics--not completely facetious--that 50% of all parents are fathers. Many times, the fathers are included in the study only as an afterthought (Biller & Meredith, 1972).

Much of the current interest in the father's role seems to have been intensified by the growing awareness of the prevalence of fatherless families and the social, economic and psychological problems that such families often encounter. The fatherless family is a source of increasing concern in many industrialized countries (Wynn, 1964). More than 10% of the children in the United States--a total in excess of six million--live in fatherless families (Clausen, 1966; Herzog & Sudia, 1970). Fatherless families are especially common among the lower class and particularly among lower class black families,

approaching 50% in some areas (King, 1945; Moynihan, 1965). These statistics give some indication of the scope of the problem, but they fail to spell out the serious consequences of the paternal deprivation found in even many so-called "father-present" American families. Research and clinical work with both intact and "broken" families have revealed a wide-spread lack of father-involvement necessary for the optimal personality development of children (Biller and Meredith, 1972). Many writers have speculated that the primary effects of father-absence are manifested in terms of defects and/or abnormalities in the boy's sex-role development (e.g., Biller, 1970; Yarrow, 1964).

Data presented by Pedersen and Rabson (1969) suggested that the father-son relationship is important even during the child's first year of life. In an intriguing attempt to explore the impact of fathering on infants, these investigators studied correlates of the infants' attachment behavior (i.e., intensity of infant's greeting behavior upon the father's return, directed smiles, vocalization, increased level of excitement). The infants' behavior was observed at eight months and again at nine and one-half months old. Pederson and Rabson found that the degree to which the father participated in caretaking (e.g., giving bottles, changing diapers, etc.) engaged in stimulating

play (e.g., excitatory and arousing activity), and was generally emotionally involved with his infant son was related to the infant's attachment to his father. The authors speculated that such early father-son attachment might be an important factor in the sex-role development process.

Until recently, the question, is the father an object of attachment for the human infant?, has been ignored or implicitly answered in the negative, while research in the area of infant attachment has been focused almost entirely on the infant's relationship to his mother. The mother-centered relationship seems to have been generated on the assumption prominent in ethological and psychoanalytic theorizing that the mother is the exclusive object of attachment in infancy (Biller, 1970). Although the father's role in preschool years has been considered important for the development of conscience, instrumental skills, and sex role identity (e.g., Hoffman, 1970; Mischel, 1970), his role in infancy has received very little attention. In some child development texts, more space is devoted to the infant's relationship to his toys than to his father (Biller, 1970).

There seems to be no obvious reasons why the father should not become a significant object of attachment for

his infant. Many of the factors which presumably play a role in developing mother-infant attachment can be shown to apply to the father. The infant has had considerable and consistent exposure to the father. In Piagetian terms he has probably formed recognitory schemata for many aspects of his interaction with the father such that by an early age he can recognize his father's voice, the feel of being held by him, and the pleasure of playing with the father (Biller, 1970). In terms of social learning theory, the father should become a generalized reinforcer, since in his role as periodic caretaker he is associated with feeding, warmth, soothing contact, and the removal of painful stimulation. In addition, many fathers play special rough-and-tumble games which their wives do not engage in and which appear to be highly pleasurable for the infant. Similar games have been thought to be important in the affectional systems in infant monkeys (Harlow & Harlow, 1962). Furthermore, fathers are by no means devoid of tenderness, nurturance, sensitivity, and other qualities which are traditionally characterized as "maternal". In light of these considerations, the ethological view that the typical infant is "monotropically" attached to his mother (Bowlby, 1958, 1969) or the psychoanalytic position that an exclusive symbiosis exists

between mother and child (Balint, 1953; Benedek, 1938), might possibly be brought into question.

Researchers studying the behavior of infants in interaction with their mothers have reported that in the second half-year of life attachment behaviors are selectively directed toward the mother and away from strangers (e.g., Ainsworth & Wittig, 1969; Bowlby, 1969; Spitz, 1965). The few studies in which the father is considered as a potential attachment figure indicate that he also may elicit selective behaviors from his infant in the first 18 months of life. Ainsworth (1967) and Schaffer and Emerson (1964) reported a small number of subjects who developed attachment first and most intensely to their fathers. By 18 months of age 75% of Schaffer and Emerson's 60 subjects demonstrated father attachment in the form of protest on separation. Most recently, Kotelchuck (1973) reported that infants responded to both father and mother with similar clinging and protest behaviors during a series of 12 departures and reunions with the father, the mother, and a stranger, which possibly suggests equal attachment toward the two figures. Lewis, Weinraub, and Ban (1972) found differences between infants' reactions to mothers and fathers at one year of age but no significant difference at two years of age.

In a study by Cohen & Campos (1974), fathers were compared to mothers and strangers as elicitors of attachment behaviors in 60 infants--10, 13 and 16 months of age. Differential proximity--seeking behavior, distress vocalization, and stranger eye contact from a "secure base"-- were used to index attachment. Fathers were found to be unequivocally superior to strangers as elicitors of attachment behaviors but second to mothers at all age levels. When both parents were present, subjects approached mothers twice as often as fathers. Tested with each parent separately, they traveled the same distance to the father and spent a significantly greater proportion of time in proximity to the mother. The amount of eye contact with strangers was significantly greater when subjects were in proximity to mothers as compared to fathers. Distress vocalization during separation from the parents was one of the few measures which did not discriminate between mothers and fathers.

While men and women are becoming less or perhaps different in a new way, there is a need to try to discover the biocultural potential for both sexes. A psychologist at the University of Wisconsin became interested in paternalism and brought up the theory that perhaps fathers, when given the chance, could be just as successful as

mothers are at raising healthy infants. Mitchell's (1974) study was done with rhesus monkeys; he found that adult male monkeys which were characterized as indifferent or even hostile to infants in the wild, can become intimately attracted to them in the laboratory, displaying parental behavior which they rarely display in the wild.

Paternal behavior is not merely maternal behavior adopted by an adult male (Mitchell, 1974). Rhesus paternalism differs significantly from maternalism in several ways. Paternal-infant attachment apparently increases over time while maternal-infant attachment decreases with time, a normal adult male monkey protects his infant by moving toward the threat while the female retrieves her infant and withdraws, and adult males play more frequently and intensely with their infants than rhesus mothers do. Both styles of rearing seem to be effective in raising socially and physically healthy rhesus monkeys. Surprisingly, male isolates, who one might expect to be at least inferior if not dangerous fathers, can function quite successfully as socializers for rhesus infants (Gomer, Mitchell & Redican, 1974).

The biological basis for assigning social roles comes into serious question. Males and females have been, are and will be different, but this difference is the result

of the inextricably intertwined processes of biology and culture. Culture and biology are both a part of evolution, and the theory that men's and women's roles differ solely because of their biology is false. Culture and biology act together as one. On the basis of some form of biological imperative, mothers have often been assigned not only a sufficient but a necessary role in rearing offsprings (Mitchell, 1974).

Cross cultural studies in anthropology have shown male roles in child rearing to be different from the western concept. In Sex and Temperament in Three Primitive Societies, Margaret Mead (1935) described Arapesh men as practicing a form of couvade, a ritual process whereby a man simulates the act of birth; in extreme cases in some cultures, men even go into labor pains with their wives. In the Arapesh version of couvade, the husband lies down next to his convalescing wife after she has given birth to a baby and fasts with her for five days. According to Mead, the relatives refer to the husband in this state as "in bed having a baby", although the baby has already been born. The upbringing of children remains a mutual responsibility for both mothers and fathers, and both are involved in feeding the children and in disposing of the babies' excreta.

Among the Manus of New Guinea, it is the man who completely assumes the task of child-rearing. At the age of one year, the Manus child is transferred from the care of the mother to that of its father, who feeds, bathes and plays with it during the day and sleeps beside it at night (Little, 1975).

CHAPTER III

Methods and Procedures

The overall purpose of this study was to determine if fathers who were separated from their newborn infants differed in the way or manner in which they held their babies from those fathers who had not been separated from their infants.

Prior to the initial testing, permission to interview subjects was secured from Dr. Ronald Henderson, Head of Obstetrics at St. Vincent's Hospital, whose patients were at St. Vincent's Hospital. These patients were involved in a rooming-in situation where the mothers could have their infants in the room with them and the fathers could come as they pleased and also help with the caring and feeding of the new baby.

Permission was received at Shelby Memorial and Bessemer Carraway Hospitals through the supervising nurses in obstetrics. Both of these hospitals had policies that no one was allowed in the room while the mothers were

feeding their infants. Because of this, the fathers were unable to hold their infants until the babies' dismissal from the hospital.

Subjects

Fathers of 30 infants born during the months of April and May, 1975 were the subjects. Group A consisted of 15 fathers who had not experienced prolonged post-partum separation from their infants. These fathers all had held and handled their infants during the first 24 hours following birth. This group was made up of fathers whose babies were born at St. Vincent's Hospital in Birmingham, Alabama. The second group, Group B, consisted of 15 fathers from a comparable population who had experienced prolonged post-partum separation from their babies. Prolonged post-partum separation was designated to mean that the father did not hold his infant at all during the first 24 hours following delivery. The Group B consisted of fathers whose infants were born at Shelby Memorial Hospital in Alabaster, Alabama or Bessemer Carraway Hospital in Bessemer, Alabama.

No father declined to participate in the study and most were excited to talk about their new babies. Many of the subjects appeared to be flattered that someone was conducting a study with fathers. The ages of the fathers

varied. Some were quite young, others were middle age. For some, this birth was the fifth or sixth child. Most of the fathers were of a middle income group; none were economically disadvantaged. Generally, the participants were found to be very cooperative and more than willing to be interviewed.

Procedures

The experimenter visited new parents in each hospital and after a brief introduction and interview determined those parents who would be willing to participate in the study. At this time, basic information was gathered--name, address, phone number, date of the infant's birth, exact time of birth, time at which the father first held the infant (which determined the group in which each father was placed) and expected date of the mother's and infant's dismissal from the hospital. A date was set during this initial interview for a further interview and collection of data. For all the subjects in this study, the same procedure was employed in obtaining the necessary data.

Shortly after the mothers and infants had been dismissed from the hospital, a period of time from one to two weeks, the investigator visited the homes of the subjects. The baby was placed on a table or bed in a

position where the infant's feet were directly to the midline of the father who was requested to stand for the observation. The father was then asked to pick the infant up as if to comfort the baby and in a way or manner in which the father was most comfortable. The investigator then noted on which side the father held the baby. The following questions were then asked each father:

1. How long was it from the time the baby was born until you first held him?
2. Do you have any younger children and if so, how long after birth was it before you held each of them?
3. With which hand do you write?
4. When was the baby born (exact date and time)?

Pilot Study

Once the procedures were set up, a pilot study was conducted in order to familiarize the investigator with the interview and procedures to be used in the observations. The subjects were a small group of fathers of newborn infants. Interviews were conducted at St. Vincent's Hospital in Birmingham, Alabama and observations were later conducted in the homes of the parents.

Five fathers were interviewed none of whom had experienced prolonged post-partum separation. Four of the fathers held their infants on the left side and one held his on the right.

In the process of conducting the pilot study, it was realized that only one group of fathers, those who had not experienced prolonged separation, could be obtained through St. Vincent's Hospital and plans had to then be made to locate other hospitals in which the other group of fathers, prolonged separation, could be found.

Analysis of Data

The holding behavior of fathers was recorded in terms of frequencies. Percentages of responses were computed and reported, although the groups were very small. In the analysis of the data, several biographical factors served as the basis for comparisons of the holding behavior of fathers who had not experienced prolonged post-partum separation (Group A) and fathers who had experienced prolonged post-partum separation (Group B).

CHAPTER IV

Data and Discussion

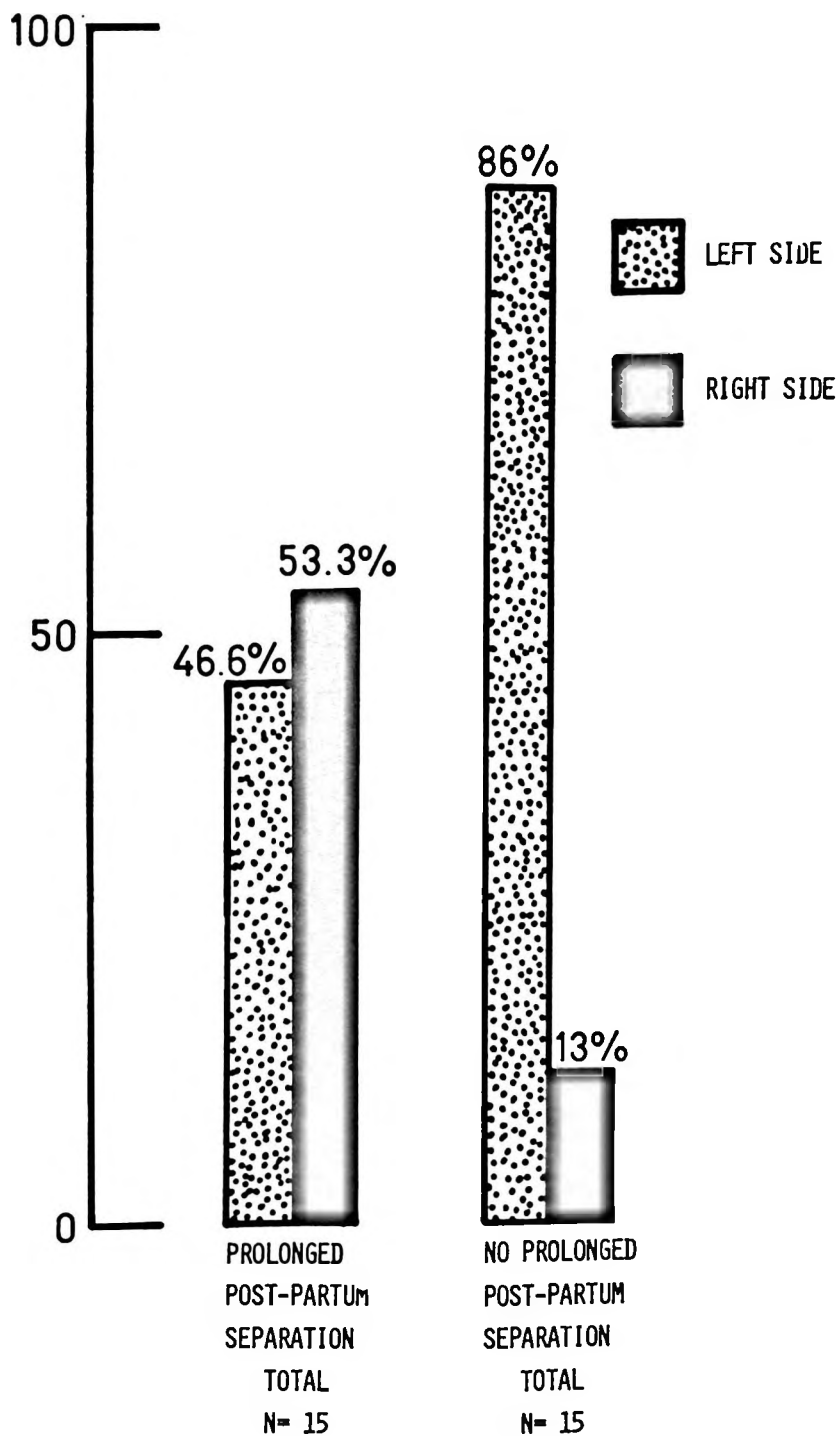
The purpose of this study was to determine if fathers who had been separated from their newborn infants differed in the way in which they held their babies from those fathers who had not been separated from their infants.

Data

The analysis of the data revealed that of the 30 fathers interviewed and observed, 22 (73.33%) held their infants on the left side and eight (26.66%) held theirs on the right.

Fathers in Group A, those who had experienced no post-partum separation, showed a marked preference for holding their babies on the left side. Of the 15 fathers interviewed, 13 (86.6%) held their infants on the left side while only two (13.3%) held their infants on the right side as shown on Figure 1. These results were in striking similarity with the data obtained earlier by Dr. Lee Salk

FIGURE I
POSITIONAL INFANT HOLDING BEHAVIOR
OF FATHERS



(1970) in a study conducted with mothers in which 77% held their infants on the left side and 23% held theirs on the right.

These findings regarding holding behavior are in contrast to the behavior of fathers who experienced prolonged post-partum separation. This group showed no particular side preference, with eight of 15 (53.5%) preferring the right side and seven (46.6%) preferring the left, as shown on Figure 1. These exact percentages were the ones found by Salk (1970) in his study of mothers but were reversed. He found 53% of the mothers held their infants on the left side and 47% on the right.

These results suggest that prolonged separation may alter the holding response of the fathers to their baby. Moreover, the results suggest the theory that the time immediately after birth is a critical period during which the stimulus of holding the infant releases a certain maternal response might also be applied to fathers.

It was discovered that of the 15 fathers who had held their infants within the first 24 hours after delivery, nine had actually carried their infants from the delivery room to the nursery at the hospital. Several fathers commented that they enjoyed being with their newborns during the rooming-in period and having an active role as

a parent during the stay in the hospital. The other 15 fathers in the study had not been able to hold their infants until the infants were dismissed from the hospital, which was anywhere from two to five days after birth. These exact times at which the fathers first held their infants are shown on Table 1. Many of these fathers expressed their own negative feelings about being unable to have any contact with their infants during the hospital stay.

Each of the groups was divided further to determine whether a father was left handed or right handed seemed to affect the side on which he held his child. Table 2 shows that of Group A, no post-partum separation, 12 (93.3%) out of 13 right handed fathers held their babies on the left side while only one (7.7%) held his on the right. One of the two left handed fathers held his infant on the left side and the other father held his on the right. It was interesting to note, however, that several right handed fathers gave as a voluntary reason for holding their infant on the left side the fact that they were right handed. However, the left handed father who held his infant on the left side commented the reason was because he was left handed.

Right handed fathers in Group B, those who experienced prolonged post-partum separation, showed the same type of

TABLE 1

TIME INTERVAL FROM BIRTH UNTIL FATHERS
FIRST HELD THEIR INFANTS AND SIDE
AGAINST WHICH FATHERS HELD THEIR INFANTS

Time	Side		Total
	Right	Left	
Delivery Room.....	1	8	9
1 hour	0	1	1
2 hours.....	1	0	1
4 hours.....	0	1	1
6 hours.....	0	2	2
7 hours.....	0	1	1
48 hours.....	2	0	2
72 hours.....	0	3	3
96 hours.....	4	2	6
120 hours.....	2	2	4

TABLE 2

SIDE OF THE BODY AGAINST
WHICH THE FATHER HELD HIS CHILD

No Prolonged Post-Partum Separation

	Left Side	Right Side
Right Handed Fathers N=13	12 (92.3%)	1 (7.7%)
Left Handed Fathers N=2	1 (50.0%)	1 (50.0%)

Prolonged Post-Partum Separation

	Left Side	Right Side
Right Handed Fathers N=13	7 (53.8%)	6 (46.2%)
Left Handed Fathers N=2	0	2 (100.0%)

response as the overall group. There was marked preference shown; seven out of 13 (53.8%) held their babies on the left side while six (46.2%) held theirs on the right as shown on Table 2. Once again, as with Group A, no post-partum separation, only two of the fathers interviewed were left handed and both held their infants on the right side.

In Salk's study (1970) with mothers, both the control group and the experimental group were divided according to those who had had no previous children and those who had had previous children from whom they were not separated during the post-partum period. In the present study among Group A, no post-partum separation, only three had not been separated from a previous child or children and their holding responses were 100% on the left side. In Group B, those separated from their infants, there were no fathers who had experienced no separation from previous children.

The data that were collected for comparisons according to those who had no previous children, however, were interesting. Of the group which had experienced no separation, eight of the fathers were fathers for the first time. Among this group, all eight held their infants on the left side. With Group B, post-partum separation, seven held their infants on the right side while two held their infants on the left.

CHAPTER V

Summary

The purpose of this study was to determine if fathers who had been separated from their infants differed in the manner in which (against which side of the body) they held their babies from those fathers who had not been separated from their infants.

The subjects in this study were 30 fathers of infants born during the months of April and May, 1975. One group of 15 fathers had experienced no prolonged post-partum separation from their children who were born at St. Vincent's Hospital in Birmingham, Alabama. A second group was composed of 15 fathers who had experienced prolonged post-partum separation from their children who were born at Shelby Memorial Hospital in Alabaster, Alabama or Bessemer Carraway Hospital in Bessemer, Alabama. Prolonged post-partum separation meant that the father did not hold his infant at all during the first 24 hours following delivery.

Observations were made of the fathers' holding behavior with their infants and a brief interview was conducted. As a result of this study and the data collected, certain findings and conclusions were obtained.

Findings

1. Of the 30 fathers interviewed and observed, 22 (73.3%) held their infants on their left side and eight (26.6%) on the right.
2. Fathers who had experienced no post-partum separation from their infants showed a marked preference for holding their infants on the left side. Of the 15 observed, 13 (86.6%) held their infants on the left side, only two (13.3%) on the right.
3. Those fathers who had experienced prolonged post-partum separation showed no particular preference with eight fathers (53.3%) holding their infants on the right side and seven (46.4%) on the left.
4. Fifteen of the 30 fathers had not been separated from their infants the first 24 hours after birth. Of these, nine had carried their infants from the hospital delivery room to the nursery.

5. The other group of 15 fathers had experienced post-partum separation from their infants. These fathers were not allowed to hold their infants until dismissal from the hospital, a period of time from two to five days.
6. Of the left handed fathers, (no post-partum separation) one-half or 50% held their infants on the left side and one-half (50%) on the right.
7. Of the right handed fathers, (no post-partum separation) 12 (92.3%) held their babies on the left side while one (7.7%) held his on the right side of his body.
8. Right handed fathers in the group experiencing post-partum separation showed the same type of holding behavior as the other fathers in that group with seven (53.8%) holding their babies on the left side and six (46.2%) on the right.
9. Both of the left handed fathers in the post-partum separation group held their infants on the right side.
10. In the group which experienced no post-partum separation, eight of the fathers had no younger children and all held their infants against the left side.

11. Of the fathers who experienced prolonged post-partum separation and who were fathers for the first time, two (22.2%) held their infants on the left side and seven (77.7%) on the right.

Recommendations for Further Study

The findings in this study were markedly similar to those of Salk in his study of mothers. Further research regarding fathers would be desirable in that greater understanding regarding fathering might result. It appeared to the investigator that a number of additional studies might be suggested.

A study could be conducted comparing those fathers who had experienced prolonged post-partum separation and those who had not with their attitudes toward child rearing

A longitudinal study of the similar groups of fathers could be conducted and a comparison made of father-child relationships in the two groups.

Since prolonged post-partum separation in this study was considered to be 24 hours or longer, one might question whether varying amounts of separation might have varying effects on the manner in which the fathers held their infants.

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APPENDIX

THE QUESTIONNAIRE

Interview Questionnaire

1. How long was it from the time the baby was born until you first held him?
2. Do you have any younger children and if so, how long after birth was it before you held each of them?
3. With which hand do you write?
4. When was the baby born (exact time and date)?