Aspects of the relationship between

PART-TIME MATERNAL EMPLOYMENT, INFANT

SOCIO-EMOTIONAL DEVELOPMENT in the second

year of life, and MATERNAL SATISFACTION

by

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Sixty mother-infant dyads were followed from birth to fifteen months. Mothers were matched for ethnicity, social class and parity, but half intended to work part-time within a year of giving birth.

Using a multi-level approach to data collection, potential working and non-working groups were compared at three months post-partum on a variety of indicators to assess whether the two groups differed prior to maternal employment. As very few significant differences were found, it was argued that the groups could be construed as homogeneous, and therefore any differences subsequently found on the outcome measures, viz. infant socio-emotional development, and maternal welfare and satisfaction, could, with some confidence, be attributed to the mother's employment status.

At fifteen months post-partum, effects of part-time employment on infant socio-emotional development were assessed using a questionnaire designed by the author. Infants of working mothers were found to show more empathy, but were less sociable and socially skilled; they displayed more fearful behaviours and were perceived to have more
'problems' than infants of non-working mothers. No differences were found in emotional expression, fear of strangers, or separation/reunion behaviours. Effects were generally more pronounced in girls than in boys.

Maternal welfare and satisfaction were, as predicted, functions of the congruence between a mother's career orientation and actual employment status, with 'congruent' mothers experiencing more satisfaction than 'incongruent'. Congruence did not, however, affect infant socio-emotional development.

It was concluded that maternal employment status must be congruent with career orientation to maximize role satisfaction. If 'satisfied' mothers are the best mothers, and congruence is the key to satisfaction, then for mothers who must work, part-time employment seems to be the best option, as it will have little effect on infant socio-emotional development.
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1 Introduction

To study the effects of maternal employment on the socio-emotional development of infants seems, at first sight, to be a relatively straightforward task. However, taking 'maternal employment' as a starting point, it rapidly becomes apparent that mothers cannot just be divided into 'working' and 'non-working' groups without obscuring far more than could be illuminated by any findings. It is necessary to establish which mothers work, and why, and whether such mothers are different from mothers who do not work, apart from their employment status. Are any observed effects influenced by the reason for a mother's employment? If a mother does not actually want to work, but would rather remain at home to care for her infant, will effects be the same as for the infant of a career-minded woman who wants to work? Are there likely to be any effects if a mother does wish to work but feels it would not be in the infant's best interests so to do? Are the effects of full-time employment the same as those for part-time employment?

Effects of maternal employment are also to be found on mothers themselves, the most commonly reported being role strain and conflict, guilt and anxiety. But do all working women suffer because of their decision to work; is employment incompatible with
motherhood in terms of satisfaction such that only non-working mothers can be fully satisfied? Or do some non-working mothers also feel dissatisfied because they are highly career-oriented yet their child-rearing ideology, or societal pressures, militate against resumption of their careers? These are just some of the questions that the present study attempts to address, for as the statistics indicate, maternal employment is still increasing despite the cultural dogma in our society that it has harmful effects on the children.

The corollary of maternal employment is alternative child care, for very few women are able to take their child to work with them. Again, it transpires that alternative care is not a unitary concept; care may be provided in a variety of ways, ranging from being left with Grandma to being placed in a purpose-built day care centre with trained staff and planned curriculum. Clearly, it is necessary to delineate the type of care, whether it is individual or group care; by trained or untrained personnel; the location of care; the age of the child at entry into such care, rather than talking of 'the effects of day care' as though all forms are equivalent and result in similar effects.

Turning to 'socio-emotional development', one cannot find a generic definition for it; every researcher has his or her own idea of what it means, and usually 'attachment' figures prominently in any working definition. But, regardless of the fact that everyone knows what 'attachment' means, its operational definition is frequently
vague. One way in which it has been operationalised is in the 'Strange Situation' (to be described in detail in Chapter 4), in which it is measured by an infant's reaction to being left alone with a stranger in a laboratory for a few minutes, and his/her behaviour upon reunion with the mother. Such a narrow definition of socio-emotional development may again obscure more than it reveals about an infant, and, as will be argued in Chapter 6, is unlikely to bear much resemblance to the socio-emotional behaviour of children as observed in everyday situations.

It is the author's firm belief that psychology has a duty to be relevant to every-day life; it is, after all, concerned with people, and a basic psychological need for all people is the need to be able to predict - to predict behavioural outcomes of certain actions reduces uncertainty and alleviates anxiety in a world as threatening today, as evinced by the incidence of stress-related disorders, as it was to our hunting/gathering ancestors. For this reason, every effort has been made in the study to be reported here to fully understand what is meant and implied by psychological concepts, and to design a study that addresses the current societal issue of maternal employment and its effects in an ecologically valid manner that will enable predictions to be made with more accuracy, and sensitivity, than those based either on cultural dogma or the premisses of BOVLEY, which, in his early writings, virtually proscribed any form of separation from the mother.
Overview of the study

The author's approach to this very complex area of study has been to progressively narrow the field to focus on the issues of specific interest. Part II therefore begins with a review of general theories of emotion in Chapter 2, which also incorporates a review of developmental theories. Contemporary research has, however, moved from descriptive, normative accounts of specific emotions to centre on what has become the major organizer of socio-emotional development, namely, the infant's tie to his caretaker. The theoretical position of BOWLBY has been the major influence in this movement, tracing a continuum from animal to human studies. In Chapter 3 the phylogeny of socio-emotional development is traced through comparative studies of bonding and attachment. In Chapter 4 bonding in human mother-infant dyads is reviewed before moving on to BOWLBY's account of attachment and the ontogeny of attachment. The vast corpus of studies generated by BOWLBY's position and the operationalization of attachment developed by AINSWORTH and her colleagues is then reviewed. In order to provide a rounded account of socio-emotional development, other aspects are reviewed in Chapter 5, concentrating on temperament and sociability.

In Part III, attention is turned to the other major area of interest in this study, namely maternal employment and day care. Chapter 6 looks at sociological trends in maternal employment, and at variables such as career orientation, and attitudes to childrearing, which may differentiate the working from the non-working mother. The
different types of day care available to working mothers in Great Britain, the United States, Sweden, Israel and the USSR are reviewed so that the reader can appreciate alternative systems. In Chapter 7, studies of the effects of day care on both infants and mothers are reviewed in some depth as they will give rise to hypotheses for the present study.

The detail of the present study is set out in Part IV, beginning in Chapter 8 with the rationale, aims and objectives, experimental design and study plan for the main study. Chapter 9 describes the pilot study conducted to assess the feasibility of the main study and the reliability and validity of instruments to be used therein. The measures and instruments used in the study are described in Chapter 10, with sample recruitment and procedures being described in Chapter 11.

In Part V, the results of the main study are presented in Chapters 12 and 13. These results are discussed in Chapter 14, both in terms of their theoretical underpinnings and in relation to other studies reviewed in earlier chapters, and future directions for research in this area are suggested. A model of the relationship between maternal employment, maternal role satisfaction and infant socio-emotional development is proposed to organize the findings within a theoretical framework, and recommendations are made to maximize the success of maternal employment while minimizing its deleterious effects.
PART II  SOCIO-EMOTIONAL DEVELOPMENT

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CHAPTER 2 THEORIES OF EMOTION

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1. Introduction

To enter the arena of the study of emotion is to set foot into a web of tangled, overlapping, often conflicting theories emanating from differing perspectives, employing different terminology, and examining behaviour, in its loosest sense, at different levels of analysis. What is an emotion? Is it a physiological change in the level of arousal, is it the perception of an arousing stimulus, is it an overt behaviour, is it a phenomenological state, or is it some combination of all of these? If the latter is the case, what is the sequence of events? Does a somatic change precede or succeed perception of an arousing stimulus; must an overt behavioural change occur or can it be a purely cognitive event? Phylogenetically, do human emotions differ at a purely cognitive level from animal emotions; ontogenetically, can an infant experience emotion prior to the cognitive development required to perceive an arousing stimulus? Are emotions innate or learned, or a combination of both?

A comprehensive theory of emotion must account for the phylogeny, ontogeny and neurophysiology of emotion, for its behavioural concomitants, subjective feelings, the role of cognition, the relationship between emotion and motivation, recognition and
interpretation of emotion in others, the role of language in describing emotion, and similarities and differences between positive and negative emotions. In evaluating the adequacy of complex theories of emotion, it must be borne in mind that not all theorists were attempting to create comprehensive accounts of emotion, but rather were seeking to account for certain facets of emotion. Consequently, each theory should be evaluated against its own stated aims, where known, and assessed as being complementary to, rather than competing with, other theories within the wholistic framework adopted for this review. In Section 2 a brief overview of general theories of emotion will be given, and in Section 3, a working definition of emotion is adopted. In Section 4, the field is narrowed to review developmental theories of emotion. In the following two chapters, the field will be narrowed further to focus specifically on one aspect of socio-emotional development, namely bonding and attachment. Other aspects of socio-emotional development, namely sociability and temperament, will be discussed in Chapter 5.

2. **General Theories of Emotion**

In order to introduce some organization into the diversity of theories of emotion, approaches will be grouped according to the following taxonomy, which is based on the taxonomy employed by PLUTCHIK (1980) for his review of the literature:

(i) Evolutionary theories;
(ii) Behavioural theories;
(iii) Arousal/Motivation theories;
(iv) Brain function theories;
(v) Psychoanalytic theories.
At best, such a taxonomy can only serve as an heuristic device since distinctions between approaches are not always as clearly delineated as the table implies.

2.1 Evolutionary theories of Emotion

The source for current evolutionary theories of emotion is DARWIN's 'The Expression of the Emotions in Man and Animals' (1872) in which he represented a continuum of emotional expression from the lower animals to humans. Homologies across species, he observed, could be traced in behavioural expressions such as defecation and urination in association with fear, or enlargement of body size in association with anger. DARWIN considered that many emotional expressions were innate since they appear in similar form in many lower animals, in very young children before learning can have taken place, in blind as well as sighted humans, and cross-culturally in different societies. He also recognized that some emotional expressions are learned and transmitted within cultures.

In his evolutionary account, Darwin was attempting to account both for the phylogeny of emotion, and for the innateness of certain emotions in humans. More recently some theoretical approaches clustering under the evolutionary 'umbrella' have split phylogeny, ontogeny and innateness. For example, in recent decades ethological research such as that of EIBL-EIBESFELDT (1971) has investigated the universality of facial expression, such as frowning or smiling, and social psychological research such as that of ARGYLE (1975) and EKMAN & FRIESEN (1975) has examined bodily communication.
Theories such as those advanced by TOMKINS (1962, 1970), and IZARD (1972) concentrate more on the innateness of emotion, whilst theories such as that of PLUTCHIK (1970, 1980) adopt a Darwinian frame of reference to account for both aspects.

TOMKINS and IZARD consider that there is a strong innate component to emotion, TOMKINS listing eight primary affects of interest/excitement, enjoyment/joy, surprise/startle, distress/anguish, disgust/contempt, anger/rage, shame/humiliation, and fear/terror. These innate factors interact with the secondary or learned drive system, thereby linking emotion with motivation. Both TOMKINS and IZARD consider that affects are mainly reflected in facial expressions which are innate and may be triggered by sub-cortical mechanisms in the central nervous system. Feedback is therefore provided and may be either rewarding or punishing. A major problem for TOMKINS' theory is the inhibition of emotion, since most people develop some measure of control over their facial expressions.

IZARD has extended TOMKINS' theory and attempts to account for neural activity, glandular, visceral and psycho-physiological responses, subjective experience, expressive behaviour and instrumental responses. In IZARD's view, emotion constitutes one of five inter-related sub-systems of personality, the fundamental elements combining to form traits and personality patterns. He extends TOMKINS' emphasis on facial expression and links it with the related components of neural activity and subjective experience, and the auxiliary systems of reticular arousal, which amplifies or attenuates emotion, and the visceral system which prepares the way for emotion. These systems
are integrated with the cognitive and motor systems so that for a given emotion there is an electro-chemical level, which is innate for the fundamental affects, an efferent level in facial-postural patterning, and a feedback level to the association areas of the brain, which may operate with or without awareness. In his argument against cognitive approaches to emotion, IZARD cites the examples of the mating dance of the male stickleback being triggered by any stimulus resembling the underbelly of the female, or, in humans, free-floating anxiety or objectless fear, thus 'emotion (is) an experience defined not by a stimulus but by evolutionary-hereditary processes' (IZARD, 1972).

PLUTCHIK (1962, 1970, 1980) assumes that 'emotions as seen in human adults are complex, mixed, and difficult to unravel but have fundamental components similar to those seen in young children or in animals' (1980, p.49).

He regards emotions as theoretical concepts, rather than as subjective experience per se, to be inferred from indirect evidence. According to his structural model of emotion (PLUTCHIK, 1970, 1980), emotions can simultaneously vary along the three dimensions of intensity, similarity and polarity. For example, apprehension is less intense than terror; surprise and fear are more alike than joy and anticipation; and all emotions are bi-polar, thus acceptance is the opposite of disgust. The model assumes a circular ordering of emotions and PLUTCHIK (1980) claims that empirical data on the perceived similarity of emotions supports this circular ordering. The theory also states that personality traits can be interpreted as
mixtures of basic emotions, and, following the circularity in ordering of emotions, provides a useful link with circumplex models of personality traits.

Fundamental to PLUTCHIK's theory are the notions that emotion involves prototypical adaptation, evolution and cognition. These notions are embedded in ten key postulates (PLUTCHIK, 1980). Prototypical adaptive behaviours comprise incorporation (e.g. ingesting food); rejection (e.g. defecation); destruction (e.g. killing); protection; reproduction; reintegration (e.g. reaction to loss); orientation and exploration.

PLUTCHIK also tackles the problem of the use of language employed in the analysis of emotion, distinguishing the everyday subjective language used to describe emotional experience, the purely descriptive based on behavioural observation, and the functional, based on the adaptive function of the organism's behaviour.

Of the evolutionary theories outlined above, PLUTCHIK comes closest to accounting for most of the phenomena and complexity of emotion. Accounts such as that of IZARD, which refute cognitive involvement, lie somewhat closer to behavioural theories, to be described next. Despite the elegance of IZARD's theory, it remains to be seen whether he can account for complex emotions such as grief or love through post-hoc associational analysis occurring with or without awareness. Without empirical data to support his theory, it appears counter-intuitive to negate the role of cognition in emotion, a point to be considered further after reviewing behavioural theories.
2.2 Behavioural Theories of Emotion

The first behavioural theory of emotion was that of WATSON (1924) who defined emotion as 'an hereditary "pattern-reaction" involving profound changes of the bodily mechanism as a whole, but particularly of the visceral and glandular systems' (p.225). Emotions, according to WATSON, are unlearned disruptions of organized activity. He distinguished three fundamental emotional reactions in infants 'x', 'y' and 'z', resembling fear, rage and love respectively in adults, the patterns of reaction being innate and evident from birth. Emotion in infants will be considered further in Section 4 below.

TOLMAN (1923) argued that emotion cannot be defined by either responses or stimuli alone, but only in terms of the relationship between the two. However, in his view, emotion was not the exhibited behaviour but rather the readiness or drive for such behaviour; in other words, emotion is an hypothetical state acting as a motive force.

A similar view is held by SKINNER (1953) who describes emotion as being comparable in many respects to a drive resulting in activation. However, since the same activation occurs during many different emotions it is impossible to distinguish between emotions on the basis of changes in the viscera and skeletal muscle. Since SKINNER considers that emotion is predominantly a subjective experience, his emphasis lies on the environmental factors to be elucidated in explaining emotion.
More recently, MILLENSON (1967) has presented a theory of emotion in terms of positive and negative reinforcers. In his model there are three basic emotions, namely anxiety, produced by negative reinforcers; anger, produced by the termination of positive reinforcers; and elation, produced either by the presentation of positive reinforcers or by the termination of negative reinforcers.

According to MILLENSON, elation can be produced either by cessation of negative reinforcement, or by positive reinforcement. It seems to the author more likely that his "elation" should be divided into two emotions, namely "relief" or "non-anxiety" upon cessation of negative reinforcement, and 'pleasure' upon positive reinforcement. This would result in four rather than three basic emotions, as Millenson claims, lying upon two bi-polar continua, namely

"Non-Anxiety" Stimulus off on "Anxiety", with negative reinforcement

"Displeasure" Stimulus off on "pleasure", with positive reinforcement

According to Millenson, mixtures of emotions can occur, when stimuli are paired successively with both positive and negative reinforcers, or where the reinforcer is itself both positive and negative (e.g. where presentation of food occurs with shock).

A similar theory is proposed by GRAY (1971) who views emotion as comprising three distinct systems based on the relationships between reinforcing stimuli and response systems. Thus when 'approach'
predominates, the reinforcing stimulus is a conditioned stimulus for reinforcement or non-punishment; when 'behavioural inhibition' predominates, the reinforcing stimulus is a conditioned stimulus for punishment or non-reward; when the 'fight-flight' system predominates, the reinforcing stimulus is unconditioned punishment or non-reward. Emotions, in this approach, are seen as internal states which are mainly caused by external events.

Whilst behavioural theories clearly can account for some, if not all, emotions, at least in terms of behaviour, they do not attempt to account for the cognitive and subjective elements of emotion as do the theories to be considered below, and therefore cannot offer a comprehensive account of the richness and complexity of emotion as experienced in everyday life.

2.3 Arousal/Motivation Theories of Emotion

Theories of emotion based on arousal range from the purely neurophysiological (e.g. LINDSLEY, 1951) to the purely behavioural (e.g. YOUNG, 1961), with motivational explanations (e.g. LEEPER, 1948) incorporating aspects of both.

LINDSLEY's (1951) theory states that emotions result from arousal which is brought about by the brain-stem reticular formation interacting with the diencephalic and limbic systems via the ascending reticular (ARAS) system. The expression of emotion can occur through one or more of three channels, cortical, visceral or somatomotor. Empirical support for LINDSLEY's theory is based on
his experiments with cats in which lesions in the ARAS result in
behaviour opposite to that seen in emotional arousal.

YOUNG (1961) proposes that the presence of an emotion is inferred
from knowledge of the situation, knowledge of how a person typically
reacts in various situations, physical signs of disturbance, and types
of behaviour used by a person to adjust or adapt to a situation.
Thus, for YOUNG, disorganization of behaviour is one key element in
defining an emotion; the psychological situation defines the type of
emotional response and changes in the autonomic nervous system
distinguish emotion from other psychological states such as attention.
Underlying his theory is the notion that emotion is part of an hedonic
continuum, and that affective processes may vary in sign, intensity
and duration. The four main functions of such processes are to
activate behaviour, sustain and terminate behaviour, regulate behaviour,
and organize behaviour (inasmuch as the neurobehavioural patterns
accompanying such processes become learned).

LEEPER (1948) argues against the notion that emotions are
disorganizing and takes the view that the temporary disruption of
ongoing activity results in a new organization of adaptive behaviour.
More recently he has suggested that emotions act as motives,
controlling behaviour without awareness, and giving such behaviour its
goal-directedness by forcing a choice between alternatives (LEEPER,
1970).

Other arousal theories of emotion focus on activity in the autonomic
nervous system (e.g. WENGER, JONES & JONES, 1956) or on
activation of an hypothetical central motive state resulting from interaction in the brain in a common set of neurons through joint environmental and physiological stimulation (BINDRA, 1968, 1969).

Arousal theories in general couple emotion with motivation, with the emphasis on physiological mechanisms to such an extent that the subjective aspects of emotion are either ignored or dismissed as unimportant. By contrast, cognitive theories and psychoanalytic theories consider that the subjective elements of emotion are more germane to an understanding of emotion than their neurophysiological concomitants.

2.4 Cognitive Theories of Emotion

Fore-runner of current cognitive theories of emotion is the JAMES-LANGE theory (JAMES, 1884; LANGE, 1885). JAMES argued that contrary to the commonsense view that when an emotion occurs, perception of an event gives rise to a feeling of emotion which is then followed by various bodily changes, the sequence of events is that bodily changes directly follow perception of the event and that the subjective feeling of such bodily changes is the emotion. For example, where commonsense says 'I see a lion, I am afraid, therefore I tremble', JAMES contends 'I see a lion, I tremble, therefore I am afraid'. The implication is that afferent feedback from disturbed organs gives rise to cortical activity, which is the feeling component, and that conscious awareness of this feeling is the emotion proper. The sequence of events will be discussed further when the JAMES-LANGE model is compared with the CANNON-BARD model (Section 2.5).
Whilst this theory does little to fulfil the requirements of a comprehensive theory, it has been influential in promoting study of the relationship between physiological measures of arousal and introspective states, thus laying the foundation for a psychophysiological approach to the study of emotion.

More recently, bridging the gap between physiological arousal theories and cognitive theories is the influential but controversial experimental approach of Schachter and Singer (1962). It is their thesis that emotional states are characterized by general arousal of the sympathetic nervous system, and that cognitive interpretation of the situation determines which emotion will be experienced. By manipulating subjects' interpretations of the situation they were able to show that different labels could be applied to the subjective state whereas physiologically the underlying state was identical. This was achieved by injecting one half of a sample of college students with epinephrine, the other half with a placebo of saline solution. One third of the epinephrine group were informed correctly that the injection would increase heart and respiration rate and produce muscle tremors; the second group were not told of the drug's effects; the third group were incorrectly informed that numbness, twitching and possibly headache would ensue. Schachter hypothesized that subjects in the latter two groups would be particularly susceptible to environmental cues in their search for a label for their unexplained physiological arousal. The environmental conditions were manipulated by a confederate acting out either an 'euphoric' mood or an 'angry' mood, and, as predicted, the control group and the uninformed or misinformed epinephrine groups took their cue from the confederate
in labelling their state of arousal as either happy or angry. Despite the methodological and ethical criticisms levelled at this study, the work of SCHACHTER & SINGER, and similarly VALINS (1966), has considerably influenced the recent trend towards emphasizing the role of cognitive factors in the study of emotion.

A similar position on the role of cognitive factors in the labelling of arousal is taken by MANDLER (1975). He argues that undifferentiated arousal in the sympathetic nervous system is evaluated and labelled in a 'meaning analysis' which takes account of the general situation and the cognitive state. In a continuous feedback loop environmental stimuli lead to cognitive interpretations which result in perception of arousal. This leads to an emotional experience which is then perceived and evaluated and fed back to change the original cognitive interpretation.

LAZARUS (1968, 1975, 1982) takes the view that since emotion cannot be meaningfully and unequivocally defined it should be referred to as a 'response syndrome' or 'impulse to cope'. Emotion is described as

'a complex disturbance that includes three main components: subjective affect, physiological changes related to species-specific forms of mobilization for adaptive action, and action impulses having both instrumental and expressive qualities. The somatic disturbance arises from the impulse to act that, in part, defines biologically the particular emotion. The quality and intensity of the emotion and its
action impulse all depend on a particular kind of cognitive appraisal of the present or anticipated significance of the transaction for the person's well-being'.

(LAZARUS, 1975).

Like SCHACHTER & SINGER, LAZARUS and his associates have experimentally manipulated cognitions arising in response to a film about Aborigine puberty rites designed to produce stress in the viewer (LAZARUS et al., 1962). Automatic stress responses (GSR, heart rate, respiration rate) declined when the sound track of the film emphasized the innocuousness of the ritual ('denial') or intellectualized it, but increased in a 'trauma' conditions emphasizing the stressfulness of the situation. LAZARUS interprets these findings as meaning that the same event (the film) can be interpreted in different ways which results in different emotional reactions, a view similar to that of SCHACHTER & SINGER.

LEVENTHAL (1974) proposes an information-processing model of emotion comprising an interpreting mechanism to activate emotional reactions, an expressive mechanism, feedback from which will define the subjective quality of emotion, an instrumental action system, and a bodily system to maintain the instrumental system. Feedback is again an important factor for the subjective experience of emotion which must involve an appraisal of meaning. Feature-detectors sensitive to features of environmental stimuli instigate feelings before expressive reactions occur. In many ways LEVENTHAL's theory is a re-statement of other cognitive-arousal theories such as those outlined above, merely reformulated in information-processing terminology.
The central tenet of cognitive theories of emotion is that cognitive appraisal of a situation, occurring almost instantaneously, certainly mediates emotion, although whether it plays a causal role or not is still open to speculation. As stated in the opening section, the role of cognition must be delineated in any comprehensive theory of emotion, but whilst appearing to be a necessary condition for adult human emotion, it is an unlikely candidate as a sufficient condition per se.

2.5 **Brain Function Theories of Emotion**

The brain function approach to the study of emotion attempts to understand emotion in terms of the brain structures and brain processes that are active when emotional states occur. In its search for the locus of emotion, it is also referred to as the neurophysiological approach.

The earliest attempt to delineate the neurophysiology of emotion is the CANNON-BARD theory (CANNON, 1915, 1927; BARD, 1928, 1934). CANNON rejected JAMES' theory on the basis of neurophysiological studies which recorded emotional responses in the absence of feedback to the brain in animals with the spinal cord and vagus nerve severed. He therefore contended that emotional activity was sub-cortical, postulating the optic thalamus (hypothalamus) as the neuronal relay station activating patterns of arousal corresponding to particular emotional expressions. He argued that the visceral responses to stressful stimuli are too uniform to permit a distinction between emotions or emotional and non-emotional stress, and that perception of visceral events is normally insufficient to contribute to recognition of emotional state. In addition, visceral responses have a latency that lags behind emotional experience and can occur in the absence of emotional experience.
Where JAMES proposed a linear sequence of events relating perception to feeling, CANNON argued that the thalamic discharge simultaneously produces both an emotional experience and bodily changes. These views are contrasted schematically below:

(a) **JAMES-LANGE theory**

<table>
<thead>
<tr>
<th>Perception</th>
<th>Motor Reaction</th>
<th>Visceral Arousal</th>
<th>Emotional Feeling</th>
</tr>
</thead>
</table>

(b) **CANNON-BARD theory**

<table>
<thead>
<tr>
<th>Perception</th>
<th>Hypothalamic Arousal</th>
<th>Emotional Feeling</th>
<th>Bodily Changes</th>
</tr>
</thead>
</table>

Controversy still surrounds the sequence of events between perception of an event and emotional feeling. Current research indicates that CANNON's view was too simplistic, nevertheless, the empirical studies of CANNON and BARD have focussed attention on the neurophysiology of emotion and stimulated research into the brain centres implicated in emotion.

PAPEZ (1937) considered that since the hypothalamus, described by CANNON as an integrating centre for emotions, was richly interconnected with other sub-cortical structures, and particularly with the hippocampus, the pathways between these various structures...
must be implicated in emotion. He identified three major pathways, one to the forebrain to coordinate movement, one to the association cortex to handle the 'stream of thought', and one via the hypothalamus to the mamillary body and to the medial wall of the cerebral hemisphere to handle the 'stream of feeling'. In his view therefore, emotional expression depends on the integrity of the hypothalamus, and subjective emotional experience depends upon cortical mediation. The work of PAPEZ served as a further stimulus to brain anatomy research, as related to emotions.

MACLEAN (1949, 1963) drew attention to the implication of structures in the rhinencephalon which phylogenetically have been associated with courtship, mating and fear responses. He termed this the 'visceral brain' (1949), suggesting that despite the overlay of neocortex in higher primates, the 'visceral brain' structures still exercise an important degree of control over adaptive behaviours such as those indicated above. By 1963 he had plotted the relative sizes of the 'visceral brain', now termed the Limbic system, in mammals. In higher animals, including man, emotional behaviour reflects the complex interaction of the 'three brains', the reptilian brain or rhinencephalon, the paleomammalian brain or limbic system, and the neomammalian brain or cerebrum and cortex. In relating emotional expression in animals and man to goals of the species and the individual, MACLEAN continues the DARWINIAN approach within a modern neurophysiological framework. He does not, however, seek to explain the role of cognition or language nor the ontogeny of emotion in man; nevertheless, he provides a neurophysiological paradigm within which such factors can be encompassed.
An attempt to examine such cognitive processes within a neurophysiological framework is made by ARNOLD (1960, 1970). Her basic philosophical position is that a cognitive analysis of the subjective elements of emotion will identify the physiological mediation of the process from perception to emotion and action. Appraisal of an event is central to her analysis, complementing perception and producing a tendency to action. When this tendency is strong it is called emotion and leads us to approach what is 'good' and avoid what is appraised as 'bad'. In ARNOLD's view, therefore memory plays a crucial role since all experiences are evaluated in terms of past experience and the affect associated with such experience. In addition imagination serves to project possible outcomes, forcing a choice of plan of action based on memory and expectation. The neural substrates in her analysis are the limbic system mediating liking or disliking, and the hippocampus (which she separates from the limbic system) for the memory component and initiation of action impulses which are subsequently amplified in the cerebellum. Human actions are usually seen as deliberate and based on rational judgement of short-term goals (usually emotional) and longer term more abstract goals, whereas animals are only capable of the short-term immediate, emotional appraisal.

With her emphasis on cognitive appraisal, ARNOLD's theory bridges the gap between neurophysiology and cognition and goes some way in accounting for subjective feelings and the relationship between emotion and motivation. It does not however lend itself to the formulation and testing of hypotheses in everyday life.
DELGADO (1966) presents a theory firmly anchored within a neurophysiological framework yet addressed to everyday examples of emotional behaviour. From his studies of electrical stimulation of different brain areas, he found that certain structures produce no observable effects that can be considered emotional (e.g., the motor cortex, substantia nigra); a second type of structure produces behavioural expressions of emotion but without subjective experience of emotion (e.g., anterior hypothalamus); a third type of structure produces both behavioural and subjective experiences of emotion (e.g., posterioventral thalami nucleus, tectal thalamus). However, he considers that no one aspect of an emotional state is sufficient to define the state, a variety of behaviours are implicated in each emotional state and each behaviour can appear in more than one emotional state. Consistent with this view is the fact that the same emotional state can be produced by electrical stimulation of different brain loci. Thus, rather than postulating any one locus of emotion, DELGADO argues that a neural centre serves to integrate and organize a type of behaviour, the centre being activated by impulses from different loci, dependent upon the nature of the initiating stimulus. Even then, stimulus parameters will not necessarily produce the same emotional response in different individuals since 'conscious interpretation is necessary for some types of emotions and not for others ...... emotional stimuli may originate in the environment, in memory, or even within neuronal circuits activated by chemical or electrical triggers' (DELGADO, 1966). DELGADO terms this process the 'fragmental organization of behaviour'. He also describes studies of humans stimulated by electrodes in the brain for treatment of epilepsy or intractable pain due to cancer which produce results
similar to those induced by brain stimulation in animals, with the advantage that the patients can describe the emotions they are experiencing. In this way DELGADO has been able to demonstrate a convincing continuum between emotions in animals and man, and to account for the diversity and complexity of emotional states by the 'fragmental organization of behaviour'.

2.6 Psycho-analytic Theories of Emotion

FREUD's theory of emotion emerged from his book 'Studies on Hysteria' (1895) in which symptoms of sensory loss or motor paralysis were associated with traumatic experience, appearing in the absence of nervous disease. FREUD considered that such hysterical symptoms acted as disguised representation of a repressed emotion. Such emotion was attached to memories that had been actively forgotten, or where the patient was unaware of the emotion. The symptoms could be eliminated by catharsis during which the repressed emotion was brought into consciousness, originally by hypnosis, later by psycho-analysis.

In his discussion of anxiety, FREUD dealt with the origins and expression of emotion or affect. Originally he suggested that anxiety represented a reaction resulting from an inability to cope with stress. Affects were regarded as a form of energy that required some kind of direct or indirect expression; if that expression was inhibited or repressed then the energy of the emotion had to be expressed in the form of neuroses such as the phobias, obsessions or compulsive rituals. FREUD assumed that the emotions were always related to
conflict over the sexual drive. Later, he expressed the view that anxiety was the reason for repression, rather than the result of repression, following evaluation by the ego of an event as potentially dangerous. This evaluation determines the subsequent emotional response, thus all affects consist of a cognitive process and a response to this process. Since emotion is a response it must be conscious, although the evaluation of an event may be unconscious; thus, in free-floating anxiety the patient is aware of the response but unaware of its source.

As to recognition of emotion in others, even if it is repressed, FREUD considered that indirect signs of its presence would be observable, hence his reliance upon dreams, free association and facial expression to infer the presence of an emotion, even if it is transformed or displaced. Verbal reports of introspective states are therefore only one indicator and may or may not be veridical. Emotions are too complex, often having elements rooted in infancy, to be found in any pure form. Consequently psychoanalysis attempts to determine the elements of the complex states of emotion.

Clearly, FREUD did not develop a comprehensive theory of emotion; what he did achieve was resolution of the sequence problem, since both feeling and bodily change are rooted in unconscious evaluation, to be inferred in humans in the same manner as emotions are inferred in lower animals.

That emotions can be inferred in humans on the basis of overt manifestations such as facial expression is a methodological as well
as a theoretical point. Recently, investigators such as Ekman & Friesen have taken up some of Freud's indicators of emotion e.g. "emotional leakage" in the hands, to infer internal states. Similarly, in social skills training, subjects are taught to recognize and respond to facial expression, posture etc. in assessing attitudes of others (e.g. ARGYLE, 1975; TROWER, BRYANT & ARGYLE, 1978).

RAPAPORT (1950) draws attention to the psychoanalytic view of affects by restating the ideas that an unconscious process occurs between the perception of the stimulus evoking an emotion and the peripheral physiological or visceral change; that both the peripheral autonomic change and the feeling of emotion are discharge processes of the same drive source of energy, and that all emotions are mixed since they result when different drive cathexes (psychic energy associated with an idea) are in conflict.

From this very brief account of the psychoanalytic theory of emotion, it is clear that the emphasis lies on non-observable emotional experience and the interplay between the conscious and unconscious. The existence of such states must be inferred from evidence such as dreams, free association and overt behaviour in the therapy situation, the success of the inference depending in part on the 'empathy' and 'emotional resonance' of the therapist (RADO, 1969) since conscious subjective reports of emotions are often unreliable (BRENNER, 1974). Whilst this approach does not readily lend itself to scientific investigation, it does complement the other approaches outlined above by focussing on the subjective aspects of emotional experience.
A rather different approach has been taken by BOWLBY (1969) who has combined his psychoanalytic training with elements of ethology, evolutionary theory and control theory into an account of emotional development which endeavours to encompass all the features outlined in Section 1 above as being necessary for a comprehensive theory of emotion.

BOWLBY states that 'all, or at least, most of what are termed (rather indiscriminately) affects, feelings and emotions are phases of an individual's intuitive appraisals either of his own organismic states and urges to act or of the succession of environmental situations in which he finds himself. These appraising processes have often, but not always, the very special property of being experienced as feelings, or, to use better terminology, as felt. Because an individual is often aware of these processes, they commonly provide him with a monitoring service regarding his own states, urges and situations. At the same time, because they are usually accompanied by distinctive facial expressions, bodily postures and incipient movements, they usually provide valuable information to his companions' (1969, p.138). BOWLBY considers that it is quite inappropriate to treat affects, feelings or emotions as entities, feeling should instead be 'regarded as a property that certain processes connected with behaviour from time to time come to possess' (ibid). BOWLBY's view of appraisal is strongly influenced by the cognitive approach of ARNOLD, outlined above, its function being to compare input with standards that have developed within the organism during its lifetime and to select certain forms of behaviour in accordance with results of previous comparisons. With respect to the sequence problem, BOWLBY
acknowledges the JAMES-LANGE position that once behaviour has begun emotion is often experienced and may be augmented by feedback from voluntary muscles (although probably not from viscera). Nevertheless, he considers that 'it may still be that emotional feeling is experienced also at the very start of behavioural activation, or, indeed, as an alternative to behavioural activation' (p. 168), a view very much dependent upon the cognitive approach of PRIBRAM (1967).

BOWLBY assigns the processes of appraisal a causal role in producing behaviour but is not convinced of the extent to which, and in what way, feeling itself plays a causal role. In discussing the communicative role of feeling and emotion he pays tribute to the success rate of identifying emotion in others on the basis of facial expression, posture, tone of voice, physiological changes, tempo of movement and incipient action. The function of identifying emotion in others, he claims, is both to describe how another person is feeling and to make predictions about his behaviour. This leads him to a consideration of the role of language in emotion since, in his view, 'words descriptive of feeling are readily grouped according to the types of prediction they imply' (1969, p. 157). Words denoting emotion, such as 'angry', 'afraid', or 'amorous' thus provide both a useful shorthand description of a complex state and are predictive of behaviour in a manner open to scientific investigation, both in animals and humans. For social animals, prediction of behaviour is a necessary pre-requisite for engaging in social behaviour, hence most animals and humans are reasonably competent in assessing another's emotional state and predicting therefrom the behaviour to follow,
planning their own behaviour contingent upon such assessment. Failure to accurately assess emotion, and therefore to predict behaviour, is maladaptive in all social animals, including humans, and frequently underlies impairment in the formation of social relationships.

Having briefly reviewed various theoretical approaches to the study of emotions, it is evident that the modern debate centres on the role of cognition. CAMPOS & STERNBERG (1981) state 'The recent history of the study of emotion has been dominated by approaches stressing cognitive factors. In theories of adult emotional response, cognitive appraisal now functions as the central construct' (p. 273). Its role is to mediate the relationship between the person and the environment, thus appraisal results in a particular emotion, with greater or lesser intensity depending on how the relationship is evaluated with respect to a person's well-being (LAZARUS, 1982). Normally cognition and emotion are fused, although dissociation can be achieved. The full experience of emotion comprises the three (normally fused) components of thought, action impulses and somatic disturbances.

The contrary view is expressed most cogently by IZARD (1972) and ZAJONC (1980). ZAJONC argues that cognitive appraisal is NOT a necessary as well as sufficient condition of emotion, and that affect is NOT post cognitive. On the contrary, affect can occur without extensive perceptual and cognitive encoding, affect and cognition being controlled by separate and partially independent neural systems.
Bowlby's theory of emotion appears to tackle most of the questions posed in Section 1, and, if complemented by Maclean's work on the neurophysiology of emotion, provides a theoretical framework within which to study emotional development in the earliest years. In his trilogy 'Attachment and Loss' (1969, 1973, 1980), Bowlby develops the theoretical implications of his exposition in tracing the development of attachment, the sine qua non of emotional development. Attachment will be considered in the next chapter, but before narrowing the discussion specifically to the development of attachment, the literature on emotional development in general will be briefly reviewed in the following sections.

3. Definition of Emotion

Having reviewed various theoretical approaches to the study of emotion, and before reviewing emotional development in infancy, the question of the definition of emotion arises. Since each theorist defines emotion in accordance with his or her particular perspective, a synthetic modal definition will be adopted here to encapsulate the elements of emotion upon which there is consensus and to acknowledge the perspectives in the light of which emotion has been studied. The following is therefore a working definition adopted by the author for developing lines of argument and the research plan for the present thesis. Implicit in the definition is the evolutionary perspective linking the phylogeny and ontogeny of emotion within which emotional development can be considered. The definition is therefore biased towards behavioural perspectives in order to
encompass emotional development, whilst simultaneously acknowledging
the neurophysiological substrates of emotion. The role of cognition
and language in the perception of emotion, in the individual as well
as in others, is also given prominence, and allows for the effects of
learning. The psycho-analytic concepts of inference based on
observable indirect behavioural signs are adopted, but introspection is
ruled out since it cannot be applied by very young children or
animals.

An emotion is therefore defined as a complex hypothetical construct,
the existence of which is inferred by the individual from changes in
his organismic state and subjective feelings of arousal lying along a
pleasure-displeasure or hedonic continuum; it is inferred in others
from the facial expressions, bodily postures and incipient movements
with which it is accompanied. Its elements comprise firstly, a
behavioural change from some characteristic baseline accompanied by
physiological or visceral changes; secondly, perception and cognitive
appraisal of the external situation and changes in the internal state;
thirdly, physiological arousal and fourthly, a phenomenological
component experienced as feeling. Neurophysiological structures
implicated in emotion include structures of the limbic system and
motor and association areas of the neocortex. The language used to
describe emotion circumscribes a complex state and gives rise to
predictions of subsequent behaviour. However, there is a further
difficulty in differentiating between emotions that may be considered
primary and those that are progressively acquired, or defined in a
more sophisticated fashion, through the overlay of learning, using
language as the medium for differentiation through labelling.
In the following two sections, some light may be shed upon the problem of differentiating between primary and secondary emotions through an examination of developmental theories of emotion.

4. **Developmental Theories of Emotion**

As indicated in Section 1, not all theorists aimed to develop comprehensive accounts of emotion. Consequently, certain theoretical perspectives lend themselves more readily than others to a consideration of emotional development. For example, in accounting for the ontogeny or phylogeny of emotion, introspection as a source of data must be ruled out. Developmental theories, as a result, are of limited use in accounting for the complex array of emotions in adults, and should be seen as describing the precursors of such complexity. The role of language and cognition are similarly constrained. Such constraints should be reflected in developmental theories in a bias towards behavioural studies, with a heavy reliance on inference by others in the search for the meaning of observable behaviours. In the following accounts of emotional development, therefore, the links between behavioural theories, such as those of GRAY, MILLENSON & WATSON (described in Section 2.2 above), will be stronger than with cognitive theories such as those of JAMES-LANGE, SCHACTER & SINGER, MANDLER, LAZARUS or LEVENTHAL (described in Section 2.4).

Research into emotional development broadly falls into studies involving animal subjects and those involving children. STRONGMAN (1978), in his review of the literature, comments that 'For the most
part, the recent animal studies are well controlled, methodologically reliable, and provide interesting ideas. Equally, with some exceptions, the human studies are of questionable methodology and illuminate very little, often being not much more than slight extensions of commonplace ideas' (p.180). Nevertheless, it is the studies of emotional development in children that are most germane to the present thesis and these will be reviewed in the next section. The aspect of emotional development in animals that is most relevant to the present thesis is the development of early attachments or bonds between an animal and other members of its species. Since interest in this topic has generated a large corpus of theory and research, and since the development of attachment is believed by many influential theorists to be the basis for later personality and social development, the next two chapters will be devoted to a detailed consideration of bonding and attachment in both animals and humans.

4.1 Emotional Development in Human Infants: Early Accounts

Since emotions are defined as hypothetical constructs inferred on the basis of various kinds of evidence (Section 3 above), of which subjective report is but one, often fallible, strand, emotions can also be inferred in infants. CHARLES DARWIN (1872) offered perhaps the earliest systematic description of infant emotion based on his observations of common facial expressions in pain and pleasure. WATSON (1929) adopted an experimental approach to identify infant emotional reactions to various stimuli such as stroking of an erogenous zone, sudden dropping of the infant or pinning the infant's arms to its sides. On the basis of his observations of infant
reactions, WATSON postulated three major reactions, 'x', 'y', and 'z', approximating to fear, rage and love in adults. WATSON's results were not replicated successfully but nevertheless stimulated interest in whether emotions could be reliably recognized in infants.

SHERMAN (1927a & b, 1928) conducted two major studies in this area; in the first, he asked subjects to label infants' emotional responses to unpleasant stimuli but found little agreement as to the labels imposed. In a second study, he asked subjects to judge the emotion being expressed in an infant's cry in response to an undisclosed stimulus, but again, there was little consensus. SHERMAN (1928) proposed that soon after birth an infant expresses one of two possible reactions to a stimulus, either acceptance or rejection, reflecting the broad division of emotional responses in general along the hedonic pleasure-displeasure continuum. SHERMAN's work has been criticised on a number of conceptual and methodological issues, major criticisms being that he failed to deem as correct labels which were in fact synonyms for the terms he had chosen, and that he used naive students as subjects, with little or no experience of infants.

BRIDGES (1932) has been most influential in stimulating research into emotional development in infancy. Based on her observations of 62 infants institutionalized from birth, BRIDGES describes the sequence of differentiation of emotions from birth onwards. Infants aged two to three weeks, in her account, show an 'undifferentiated excitement' to all stimulation, discrimination between painful distress and excitement appearing at about three weeks. By three months of age
signs of 'angry vexation' appear, with 'temper' occurring as a result of frustration in the fourth month. Disgust and fear are differentiated at about 5-6 months and 7-8 months respectively. Temper tantrums are observed at about 14 months, and jealousy and envy at around 15-18 months. On the positive side, smiling first appears in the second month, laughter in the fourth month, crowing and cooing in the sixth month, babbling and self-initiated laughter in the eighth month, and attachment to particular individuals between 12 and 24 months. The neatness of BRIDGES' chronometry is intuitively appealing, but, as with SHERMAN's studies, a number of conceptual and methodological criticisms have remained unanswered. BRIDGES, like SHERMAN, never defined 'emotion', so the patterns she describes may refer only to behavioural expressions or to some state other than that labelled. Since she was the sole observer, the reliability and validity of her observations cannot be evaluated, neither can the generalizability from her foundling sample to the wider infant population. Comparative studies of children raised in institutions and those reared at home (e.g. SPITZ & WOLF, 1946; SPITZ, 1949; BOWLBY, 1951, 1958, 1960; YARROW, 1964) suggest that generalization from the one population to the other may well be invalid. Since institutionalization involves separation from the mother, whether temporary or permanent, these studies will be reviewed in the following chapters on attachment.

4.2 Emotional Development in Infants: Recent Research

Conceptually, recent research into emotional development may be broadly divided into two approaches, one based on a biological model
of development, the other on a socialization model (LEWIS & ROSENBLUM, 1978). The biological model derives from the DARWINIAN model of the adaptive function of emotional behaviour and focuses on unlearned complex behaviours. In this model there is a one-to-one mapping of environmental stimuli or elicitors with specific CNS receptors, the relationship being innate. In addition, there is a specific unlearned mapping of receptor activity to responses.

By contrast, the socialization model rejects CNS specificity in favour of responses being associated with elicitors by experience. Such learned associations are facilitated by the lexical component of emotional development in which emotions are labelled for the child. LEWIS & ROSENBLUM (1978) argue in favour of retention of both models, suggesting that the biological model best describes emotions in the very young, the socialization model best describing later development.

Methodologically, recent research has come to rely less on subjective rating and more on objective measurement. Measurement of facial expression is now often based on muscle activity, for example the FACS system developed by EKMAN & FRIESEN (1975) and adapted for the infant's face by OSTER & EKMAN (OSTER, 1978). This system, according to OSTER, provides her with an objective criterion for categorizing infants' facial expressions. A second approach has been to correlate facial expression with heart-rate or some other physiological measure. Using this technique, WATERS et al (1975) found that wary infants, as measured by facial expression, were more
likely to exhibit heart-rate acceleration than less wary infants. Similarly, CAMPUS et al (1975) looked at cardiac and behavioural reactions to approaching strangers in the presence and absence of the mother and found that progressive distress was related to bradycardia. However, LEWIS, BROOKS & HAVILAND (1978), using a more sophisticated version of this methodology, found that the only significant relationship was between heart-rate and attention, a finding that has relevance for physiological theories of emotion even if it does little to advance knowledge of infant emotional development.

Most research, other than that into attachment, has focussed on the smiling response and the conditions under which it is elicited (e.g. AMBROSE, 1961; BRACKBILL, 1958; SALZEN, 1963), laughter (SROUFE & WUNSCH, 1972), or crying (BELL & AINSWORTH, 1972; DUNN, 1977; MOSS, 1967). The longitudinal biobehavioural study of EMDE, GAENSBAUER & HARMON, (1976) is more ambitious in attempting to quantify the five 'affect behaviours' of fussiness, endogenous smiling, social smiling, stranger distress and separation distress. Early negative socio-emotional reactions such as stranger anxiety and separation anxiety are closely bound to attachment behaviour and will be considered in the following chapters. Positive socio-emotional reactions, effectively the smiling response, appear in the chronological order of endogenous smile, exogenous smile and social smile, and are closely linked to cognitive development. The function of smiling, according to the evolutionary hypothesis of EMDE et al (1976) is adaptive, progressing from the endogenous smile to the social in order to increase a mother's feelings of attachment to her own infant and to attract new kinds of social stimulation.
The **endogenous smile** occurs in neonates during states of rapid eye movement (REM-states) which are concomitant with states of sleep and drowsiness. At birth, a full-term baby produces an endogenous smile at a rate of about one per eight minutes of REM-time. Endogenous smiling decreases in the third and fourth month of life and is rarely seen after the sixth month (EMDE, GAENSBAUER & HARMON, 1976).

The **exogenous smile**, in response to external stimulation, is not present at birth, first appearing in the first or second month in response to mild nonspecific stimulation. From the age of 6-8 weeks, the human face is the most potent elicitor of smiling (AMBROSE, 1961; FANTZ, 1961; SALZEN, 1963; EMDE et al, 1976; FAGAN, 1979). Initiation of the exogenous smile is under genetic and maturation control (AMBROSE, 1961), also occurring at the same age in congenitally blind children in response to the mother's voice or touch (FRAIBERG, 1971).

The **social smile** is a discriminative smile reserved for people the infant knows. This occurs at three to four months (AMBROSE, 1961; EMDE et al, 1976) and, since it can be increasingly influenced by the mother's behaviour, social smiling has been used as an operant in conditioning paradigms (BRACKBILL, 1958). Such procedures show that a familiar person produces more smiling than an unfamiliar person (WAHLER, 1967), and that the most effective components of a composite social reinforcement are reciprocal smiling and kinaesthetic feedback, tactile components being the least rewarding (BROSSARD & DECARIE, 1968).
Laughter reliably appears at about four months of age (AMBROSE, 1963; SROUFE & WUNSCH, 1972). In a series of observational studies based on 150 infants in the first year of life, SROUFE & WUNSCH (1972) found clear evidence of age changes in both the amount of laughter and the nature of laughter-eliciting stimuli. Babies of four months laughed in response to combined auditory, tactile and visual stimulation in the stimulus "I'm gonna get you", as did all age groups, however, older babies often sought to 'engage' the stimulus by reaching or leaning forward, and generally laughed in anticipation. (The "I'm gonna get you" stimulus is described by SROUFE & WUNSCH as follows: "Say lyrically, 'I'm gonna get you' ("I'm" quite protracted), while leaning toward baby with hands poised to grab. Then grab baby around stomach. If laughter is achieved, do another trial not followed by grabbing" (1972, p.1342).

SROUFE & WUNSCH concur with other researchers (e.g. BRONSON, 1968; HEBB, 1949; WATSON, 1928) that laughter commonly occurs in response to violation of expectation, and that laughter is in some way related to fear. AMBROSE (1963) found that the laughter response had components of both crying and smiling which he interpreted in terms of ambivalence, in the psychoanalytic sense, with laughter-provoking situations presenting frightening or angering elements as well as positive elements. Functionally, laughter serves to discharge nervous energy, thus in an unexpected or incongruous situation tension develops, commensurate with the extent to which the situation meshes or fails to mesh with cognitive schemata. If the infant evaluates the situation as negative he will cry and engage in avoidant
behaviour; if he evaluates the situation as positive he will smile or laugh and engage in approach behaviour. SROUFE & WUNSCH therefore favour an explanation which links cognitive development with emotional growth and expression within a framework in which approach to the incongruous is seen as adaptive.

**Crying:** all babies cry from the moment of birth in response to hunger or pain. In addition, babies cry in the absence of any identifiable stimulus, such periods usually being termed 'fussiness' or, if recurrent, often being termed 'colic'. EMDE et al (1976) found that despite variations in mothering style, all babies showed a developmental trend in the non-hunger fussiness, peaking at about one month of age and subsequently decreasing, to disappear at about six months of age. Functionally, they suggest, crying is a signal to the caretaker to come into close proximity, a view shared by BOWLBY (1969, 1973).

Paradoxically, whereas conditioning theory predicts that behaviour followed by reinforcement will be repeated, the infant's crying decreases in frequency in response to maternal attention (BELL & AINSWORTH, 1972; AINSWORTH et al, 1978). The paradox can however be resolved if the mother's behaviour in only responding intermittently to her baby's crying is seen in terms of a partial reinforcement schedule, which, as behavioural studies show, results in high rates of sustained behaviour. Consequently mothers who always respond to a baby's crying will diminish the frequency of crying, whereas mothers who respond irregularly will strengthen the frequency of baby's crying.
Maternal interpretation of crying varies between mothers; most mothers are able to distinguish pain, hunger and tiredness but other periods of crying are attributed to psychological causes such as boredom, temper or naughtiness (DUNN, 1977). In her study, DUNN found that maternal reactions to infant crying appear to be dependent upon their attitudes to 'spoiling'. However, frequency of crying in the early weeks may be affected by the length of labour and amount of drug dosage administered to the mother. Male babies cry more at three weeks than female babies, a factor which has been linked to circumcision (MOSS, 1967). Crying therefore appears to be dependent upon genetic and temperamental factors to a greater extent than either smiling or laughing, and to environmental factors beyond the mother's control or understanding.

GAENSBAUER (1982) investigated the emotional expression in normal and high risk infants aged 12 to 19 months using a modified version of the 'strange situation' (AINSWORTH & WITTIG, 1969). He found that in normal infants, a range of affect expressions could be reliably recorded from such a brief experimental session. The nature of the affects expressed appeared "quite specific and appropriate to the stimulus events, and reveals a patterning over time which is fairly predictable, given the particular set of environmental conditions" (p.168). He did not however find changes in affective expression with age across 12-18 months. Nevertheless, it does seem that simple affects can be reliably recognised in infants by others, provided that the environmental conditions eliciting the responses are known.

In this section, the development of simple emotional responses, smiling, laughing and crying, have been briefly reviewed. Of greater
interest for the study of socio-emotional development are the complex, multi-dimensional emotional responses such as attachment or fear of strangers, to be reviewed in the following two chapters. It remains to summarise the studies reviewed above in a generic model of infant emotional development.

4.3 A Model of Infant Emotional Development

The general picture to emerge from the studies reviewed above is fairly consistent, although limited to rather gross developmental changes. RICCUTI (1968) summarizes the general portrayal of the overall course of socio-emotional development in the first two years as follows:

'Very briefly, clear-cut pleasurful social responses to other people do not appear until approximately the end of the second month, when any human face readily instigates smiling and other indicators of positive affect. This indiscriminate positive social response to humans continues until approximately the 5th or 6th month, after which smiling at strangers seems to be considerably reduced. Moreover, toward the end of the first year there is a marked tendency for infants to respond to the approach of a stranger with considerable distress and anxiety. Simultaneously, affectional attachments to specific adults such as the parents become more marked and clearly delineated, and this trend continues into the second year, during the latter
part of which one also sees increasing social and affectional interactions with other children' (pp. 84-85).

According to PROVENCE (1978) clinicians would generally consider an infant to be in a healthy state affectively if he reveals a broad spectrum of feelings that are vivid and intense. Strong affect, both positive and negative, is related to cognitive development in young children (CICCHETTI & SROUFE, 1978), indeed, the two are viewed as inseparable aspects of the same developmental process. Development of symbolic schemata means that an infant becomes increasingly competent at anticipating affective events and storing memories of past events. Endogenous affect-provoking stimuli begin to include such schemata and to combine them into fantasies leading to affect, e.g. nightmares (SAARNI, 1978). Thus from the simple affective responses in the neonate, the distress cry, the neonatal smile, startle, disgust, affective responses become increasingly complex and, mediated by cognitive evaluation, come to take account of past events and potential outcomes.

At the present time there is renewed interest in research into the emotions. According to MALATESTA (1981) 'the ascendancy of the typological approach in theory seems to offer promise of fresh perspectives. The fortuitous confluence of theory, methodology and a Zeitgeist that is once again hospitable to an examination of the emotions, would seem to augur a particularly fruitful and exciting decade for psychology' (p. 173).
Having reviewed both general and developmental theories of emotion, the field will now be narrowed considerably to focus on one aspect of socio-emotional development.

Where the earlier studies aimed to provide descriptive, normative accounts of ill-defined specific emotions, contemporary research, greatly influenced by the theoretical writings of BOWLBY (1958, 1973, 1980), centres on what is taken to be the pivot of infant socio-emotional development, namely the infant's tie to his caretaker. This bond or attachment is seen as the major organizer of infant socio-emotional development and has led to more detailed analyses of the role of the stimulus and situational determinants of social and emotional responses, embedded in an evolutionary framework of adaptiveness to provide a powerful explanatory theoretical paradigm which unites the various approaches to the difficult problem of infant socio-emotional development.

The change in direction from the study of specific emotions to the complex psychological process of attachment may be considered as what KUHN (1962) terms a 'paradigm shift'. In the following two chapters the theoretical position of BOWLBY will be examined in some detail, together with the vast corpus of research generated by his writings. Such is the explanatory power of the theory that within the evolutionary infrastructure of the theory, the continuum from animal studies to humans will be traced, and the seemingly disparate theories of emotion and phenomena of infant socio-emotional development united into one cohesive account.
CHAPTER 3  

BONDING & ATTACHMENT: ANIMAL STUDIES

1  Definition of Terms
2.1 Bonding in Non-primate Mammals
2.2 Separation-Induced distress in Non-primate Mammalian Infants
2.3 Social Plasticity in Non-primate Mammalian Infants
2.4 Imprinting
3.1 Attachment in Sub-human Primates
3.2 Separation and Isolation in Sub-human Primates
3.3 From Mammals to Men
1. Definition of Terms

The term "bonding" is usually reserved for the tie that develops rapidly after birth between a mother and her offspring. In infrahuman mammals bonding is closely associated with olfactory and tactile cues which serve both to elicit maternal behaviour and to maintain mother and infant in close proximity.

The term "attachment", as introduced by BOWLBY (1958), refers to an hypothetical construct, "an affectional tie that one person forms to another specific person, binding them together in space and enduring over time" (AINSWORTH, 1973). The tie develops gradually during the first year of life, particularly although by no means exclusively, to the mother. Bonding has been studied in human infants and is particularly associated with the controversial work of KLAUS and KENNELL (1976), to be discussed below, who use the term synonymously with attachment.

In their discussion of the theoretical issues of bonding and attachment, CAMPBELL and TAYLOR (1979) differentiate between the two:
"Thus both bonding and attachment refer to aspects of the affectional relationship between parents and infants. Bonding is primarily unidirectional, parent → infant or infant → parent, rapid (within the first hours or days after birth), and facilitated or optimized by physical contact. Attachment, on the other hand, is reciprocal (mother ← infant), develops gradually during the first year of life, and is influenced by psychological variables such as the quality, timing, and pacing of adult-child encounters." (p.3)

In the present review the writer will follow the convention of reserving the term "attachment" for the reciprocal relationship between mother and infant, and "bonding" for the early unidirectional tie.

2.1 Bonding in Non-primate Mammals

The function of bonding, according to the ethological perspective, is to maintain proximity between mother and newborn, thereby facilitating caretaking behaviour and maximizing chances of survival.

In species such as the rat, maternal behaviour both before and after parturition, is mediated by hormonal changes in the mother's body. ROSENBLATT (1965) describes the synchrony in the behavioural interaction between the mother and her pups as dependent upon the 'maternal state', defined hormonally, and stimulation from the pups. Thus licking of the newborn pups stimulates lactation which is then maintained by sucking of the nipples until weaning occurs at
approximately thirty days postpartum, all mother-litter interaction being terminated shortly thereafter. During the second two weeks postpartum the pups become mobile and may approach the mother to initiate a nursing bout. A series of experiments conducted by LEON (1977) in Rattus Norvegicus has established that a maternal pheromone attractive to pups is emitted by the lactating mother at Day 14 postpartum through Day 21. Thus:

"a striking synchrony exists between the onset and cessation of pheromone emission in mother rats and the onset and cessation of the approach response in the developing pups." (p.182)

Establishment of the pheromonal bond therefore seems to depend upon the integrity of the olfactory sense in the pup. It has been shown by SINGH, TUCKER & HOFEL (1977) that pups deprived of the olfactory sense do not approach the mother, they rapidly lose weight and many die, thus illustrating the adaptive function of the pheromonal bond. Species-specific bonding, based on homologous eliciting stimuli, in the presence of biological states of readiness, has been described by HINDE (1966).

2.2 Separation-induced distress in Non-primate Mammalian Infants

One of the most striking demonstrations of the existence of the mother-infant bond occurs when the bond is temporarily disrupted in the laboratory isolation chamber. Effects may be described in terms of immediate changes in behaviour, intermediate effects and long-term effects.
(a) Rats: rat-pups aged 12-14 days show an increment in activity when the mother is removed (ROSENBLATT, 1965). Changes from baseline levels are associated with changes in weight and occur 4-8 hours following separation (HOFER, 1975). When reunited, the maternal caretaking behaviour may be inappropriate; ROSENBLATT (1965) has shown that the 'maternal condition' referred to above ebbs quickly if the mother is separated from the litter after birth. The mother does not respond adequately to pups given to her after a few days have elapsed and pups are also often unable to adapt to the mother.

(b) Herd Animals: Young lambs aged two months become very active and agitated following separation. CAIRNS (1966b) describes how lambs run in circles and periodically charge into the walls, emitting plaintive high-pitched 'baa's'. Kids separated from mother-goats show similar distress. HERSHEY, MOORE AND RICHMOND (1958) report an experiment in which a kid removed from the mother for two hours after birth was subsequently rejected. COLLIAS (1956) reports similar rejection of lambs if separated from the ewe, and the difficulties incurred in trying to persuade a ewe who has lost her own lamb to mother an orphaned lamb.

In both cattle and sheep, immediate separation for brief periods of one or two hours may lead to unusual mothering patterns upon reunion, including neglect, or indiscriminate feeding of infants whether or not biologically related (COLLIAS, 1956; HERSHEY, MOORE & RICHMOND, 1958).
Dogs: Puppies also show increased activity upon separation from the bitch, although, being less mobile, the most striking feature of the separation response is their vocalization. Rates of yelping of up to 200 instances per minute have been recorded in some breeds (ELLIOTT & SCOTT, 1961). Heightened activity was accompanied by heightened arousal, hyperventilation and increased heart rate. By the end of the eighth hour the puppies had calmed down and resumed normative levels of eating and sleeping by the end of the second day. Long-term follow-up showed that adaptation to isolation, in terms of the gross indices of health such as appetite and sleeping, was satisfactory.

Similar patterns of adaptation to the new setting also occur in the herd animals, a pattern quite unlike that occurring in the primates and human infants, to be described below.

2.3 Social Plasticity in Non-primate Mammalian Infants

Some studies have investigated the effects of removing an infant from its mother and placing it with a surrogate. Although there are homologous patterns of behaviour in reaction to isolation, differences occur when the young of one animal are presented for fostering by another.

In a review by CAIRNS (1977), adaptation is shown to be a function of both the period of isolation preceding fostering and of the characteristics of the host. Arousal induced by the transplantation may retard or even preclude successful fostering. Alternatively,
where conditions are benign, the young may rapidly form a bond with another adult, as witnessed by the successful adoption of young lambs (CAIRNS, 1966) or even adoption by an adult of a different species (MASON & KENNY, 1974).

However, isolation of an infant also inevitably affects the mother and may result in changes in her 'maternal state', dependent upon the period of separation. CAIRNS (1972), for example, reports that after a five-week period of separation, maternal bitches have ceased lactation and subsequently reject all approaches to suckle.

From this brief excursion into the formation and maintenance of bonds in non-primate mammalian infants, it would appear that the bond, once forged, is not irreversibly fixed but requires continued mother-infant interaction to sustain it. After a period of separation the bond will not necessarily survive and may not be re-established. Evidence from adoption studies suggests that the bonding of one particular infant to a mother is not unique, hosts and infants can, within some critical period defined by the biological maternal state, establish a social bond which to all intents and purposes is identical to the biological mother-infant bond. From the perspective of the infant, such plasticity is clearly adaptive and from a developmental viewpoint anticipates the later development of social bonds. This pattern of behaviour is not, as will be shown, a blueprint for mammalian species in general; the primates and man, with their prolonged periods of dependency, rely heavily on learning and therefore show more persistent and deleterious effects from premature separation from the maternal figure. However, even in species such as the rat, there may still be a minimal period of learning required.
Before proceeding to review attachment in sub-human primates, a brief discussion on imprinting is relevant.

The phenomenon of imprinting became widely known through the work of the Austrian ethologist Konrad Lorenz. In the 1930s he observed that newly hatched goslings would follow him rather than their mother if they came into visual contact with him first. Since goslings reared naturally show a strong attachment to their mother, Lorenz concluded that certain young animals have the capacity to learn rapidly and permanently at a very early age, in particular, the capacity to learn the characteristics of the parent. Lorenz termed this process of acquiring an attachment to the parent 'Pragung', which in German means 'stamping' or 'coinage' (LORENZ, 1957).

In his original account, Lorenz regarded imprinting as a specifically avian phenomenon, but it has since been described in the social development of many non-avian species including guinea-pigs, sheep, goats (SLUCKIN, 1965, 1979). In the case of goats, SLUCKIN argues that the direction of recognition and attachment is mother—infant, and that this 'maternal imprinting' is quite separate from classical filial imprinting. This view is shared by KLOPFER and his associates who regarded the mother's attachment as olfactory imprinting. More recently, KLOPFER reported that whilst mother goats did seem to rely on olfaction to recognize their own young, this was not the basis for imprinting (KLOPFER, 1971). GUBERNICK (1980) reports that a mother-goat will accept any alien kid, provided that it has not been too long, although precisely how long is not
known, with another mother. According to HERBERT, SLUCKIN & SLUCKIN (1982) this suggests that acceptability of kids to a mother "depends not so much on maternal imprinting as on the absence of 'labels' put on them by other mother-goats; the 'labels' that evoke rejection behaviour in a mother are presumably olfactory, that is, smells of other mother-goats" (p. 208).

One of the theoretical issues in the matter of imprinting is whether or not it should be regarded as a form of learning. During the 1950s many investigators have studied imprinting in the laboratory and have regarded it as a form of associative learning. HESS (1959) rejects this view on the grounds that imprinting only occurs during a critical period. If it were a case of associative learning, he argues, it should occur at any time. He regards imprinting as a special form of learning in which there is a genetically given present readiness to attach certain behavioural responses to certain stimulus patterns. Learning is involved in that, to establish the bond, the environments must bring the responses and stimuli together during the critical period of maturation 'readiness'. Learning then proceeds rapidly and, once established, this learned response becomes a firm part of the organism's repertoire and is difficult (if not impossible) to alter.

It may be the case that HESS and the proponents of associative learning, notably HINDE, are both correct inasmuch as some special readiness to learn exists and that when the learning occurs, it is associative.

Whatever the mechanism, it has been proposed that the phenomenon of imprinting occurs in many different species, including humans,
during some critical period, and that each species makes a behavioural response that is present in its repertoire at the time. Thus, in precocial avian species and ungulates, the response is to follow, its analogue in canines is tail-wagging (SCOTT, 1963), and in human babies it is smiling. (SPITZ & WOLF, 1946, AMBROSE, 1963).

The function of imprinting is taken to be socialization into the species. SLUCKIN (1965) has reviewed reports of 'misimprinting' to other species, resulting in abnormal social behaviour in adults. If imprinting is an homology, then Harlow's accounts of rhesus monkeys developing abnormally after being reared by surrogates (see Section 3.2) may be viewed as a case of misimprinting. Similarly, in humans, the failure to imprint during the critical period for primary socialization, results, as described by BOWLBY (see Chapter 5) in psychopathy, or rather sociopathy. It must be stressed however, that imprinting is not universally accepted as an homology across species and, as will be shown in the next chapter, the studies purporting to demonstrate a form of imprinting in human babies have not been reliably replicated. In their critical review of bonding LAMB & HWANG (1982) conclude "It is unlikely that so complex and plastic a behaviour as human parenting would be narrowly and critically dependent on hormonal triggers and preorganized behaviour patterns" (p. 9). Imprinting is therefore of most value to species when both the time for learning is short and the variability in what should be learned is small. Homologous mechanisms, they argue, are therefore unlikely to exist and parallels between humans, goats and rats "are of heuristic significance at best" (p. 33).
Having given a brief account of imprinting as an explanation of early bonding in non-primate mammalian infants, in the next section attachment in primates is reviewed before moving on, in the following chapter, to a more detailed consideration of early bonding in human infants.

3.1 Attachment in Sub-human Primates

Maternal behaviour is generally well-adapted to the developmental status of the newborn. In altricial species, which include the sub-human primates, an extended period of maternal care is required. In the lower primates the infant is able to cling to its mother from birth, but in higher primates such as the gorilla a mother must carry her infant. Survival of the infant therefore depends on the close physical contact with the mother.

In common with other mammalian species described above, the earliest interaction and caretaking behaviour on the part of the mother seems to be a product of endogenous hormonal cues and visual, auditory and olfactory cues from the neonate (ROSENBLUM & YOUNGSTEIN, 1974; SACKETT & RUPPENTHAL, 1977). The infant also plays a role in the initiation of maternal caretaking behaviour; after parturition the mother brings the infant to her ventrum but it is up to the infant to orient toward her in the ventral-ventral position and eventually to move upward into an appropriate position for nursing. In the absence of such righting reflexes and negative geotropic responses the mother may carry an infant upside down before, in the case of a still-born macaque, eating it.
However, as will be shown, primates, including man, have a prolonged period of dependence and the development of an affectional bond is predicated upon more than reflexive actions following parturition. Therefore, in line with the definition of terms set out above, the relationship in sub-human primates will be referred to as attachment.

Attachment behaviour in primates has been systematically studied and detailed accounts are available of its development in rhesus, pigtail and bonnet macaques, chimpanzees, baboons, gorillas, langurs and orangutans. The latter differ from the monkeys and other great apes in that they live an isolated existence rather than in social groups. MacKINNON (1974) observes that adult male orangs are virtually isolates, forming temporary bonds solely for the purposes of mating. Infant orangs are therefore heavily dependent upon their mothers for social contact as well as nurturance, unlike the other apes and monkeys who are exposed to intense and close personal contact with other animals in the social group. Behaviour patterns of grooming, mounting, embracing and peer-group play, all of which play a role in the attachment and socialization of other sub-human primates, are therefore either missing or directed towards the mother orang.

For a description of attachment behaviour in the other great apes and monkeys, an eclectic approach has been adopted to formulate the following brief synthesis, drawing upon the work of SIMONDS, (1974); MARVIN (1977); CARPENTER (1964); GOODALL (1965); HALL & DE VORE (1965); JAY (1965) and SHALLER (1965).

The rhesus monkey reaches puberty at about four years of age and maturity at about six years; the female baboon matures at a similar
rate but the male baboon is not fully grown until about eight years. Chimpanzees mature more slowly, reaching adolescence at about seven years, maturity at ten or eleven years. A similar rate of maturation occurs in gorillas. In each species therefore, there is a prolonged period of dependence upon the mother, throughout early childhood all primate infants being either in direct physical contact with the mother or within a radius of a few feet from her. Without exception, observers conclude that the function of this attachment behaviour is to protect the infant, whether from physical hazards, predators or even potentially harmful con-specifics.

Monkeys, baboons and chimpanzees spend their early weeks clinging to the mother in almost continuous ventro-ventral contact, whereas baby gorillas lack the strength to cling until about the third month. Infants begin to ride on the mother's back as they grow older, sitting upright in the 'jockey' position, holding onto hair on the mother's back with their hands and hair on the flank region with their feet. If there is a sudden alarm or the mother is moving rapidly through foliage, infants revert to the ventral position.

MARVIN (1977) distinguishes three stages in the young primate's relationship with its mother, the early period (Infancy I) comprising virtually constant physical contact. Responsibility for maintenance of contact in this stage is a function of both mother and infant, the latter through physical effort in clinging and vocalizing. Developmental changes in attachment behaviour, MARVIN observes, are functionally related to other developing physical and behavioural systems, including locomotor skills, dentition, feeding skills and, most importantly, communication skills.
During the second stage of Infancy (Infancy II), the young primate is capable of independent locomotion, dentition is complete, thus permitting ingestion of solids, and there is usually a colour change from the infant's natal coat. Behaviourally, the infant will now leave the mother to explore for short periods, or to play with peers. Responsibility for the maintenance of proximity is now primarily the infant's, aided by the improvement in communicative skill.

In the final stage the Juvenile becomes completely independent of the mother for locomotion and feeding, as a result of which their relationship undergoes a qualitative change from one of dependency for survival to one of reciprocal friendship and respect as the young primate takes his place as an autonomous member of the troop. During this period the juvenile will initiate interactions with adult males, generally received with tolerance, although paternity is unknown due to the promiscuity of mating within the troop.

3.2 Separation and Isolation in Sub-human Primates

Naturalistic accounts of infant primates show that normally mother-infant dyads remain in close proximity. If separation occurs for any reason the status quo is quickly restored following a vocal signal from the infant, and retrieval by the mother. Separation, it appears, is an aversive condition causing distress in the infant. It is therefore from experimental separations that the corpus of knowledge about the effects of separation has accumulated. The experimental animal has usually been the infant monkey, species for which data are available include the rhesus, pigtail, bonnet and Java macaques and the patas monkey.
Generally, the responses to separation between species differ more in intensity than in kind. For rhesus, pigtail and Java macaques there is great distress during separation followed by intense clinging upon reunion. In bonnets and the patas, the initial intense distress wanes after a few hours and reunion behaviours are less intense, mainly due to the mediating effects of substitute care offered by other females in the group (MITCHELL, 1970).

The work of HARLOW and his colleagues at the Primate Laboratory, Wisconsin, has contributed much to the knowledge of the development of attachment and effects of isolation and separation in rhesus monkeys. HARLOW dispelled the notion that attachment of infants was based upon receipt of nourishment with his studies of rhesus monkeys reared upon lactating wire or terry-towelled wire surrogate mothers (HARLOW, 1958, 1959; HARLOW, HARLOW & HANSEN, 1963). Whilst the two types of surrogate were found to be physiologically equivalent, they were not psychologically equivalent. Those infants that obtained their nourishment from the wire 'mother' spent only as long on her as was required for feeding, spending most of their time clinging to the soft terry-towelled 'mother'. HARLOW considered that a major demonstration of the emotional attachment formed by the infants to the terry-towelled surrogate occurred in response to the stress of fear. When the infants were presented with strange objects such as a mechanical teddy bear, regardless of which 'mother' had provided nourishment, the infants sought comfort in clinging to the terry-towelled surrogate.

Where infants were separated from the mother at birth, and raised in individual cages, they showed that sucking and clinging behaviours
were innate predispositions by manifesting such behaviours, albeit maladaptively. SUOMI (1977) observed high levels of self-orality in the first year, sucking either fingers or toes. Self-clasping behaviours replaced clinging to the mother, and self-punitive behaviours occurred as a maladaptive response to external threat (HARLOW & HARLOW, 1962; SUOMI, 1977). As adults, sexual behaviour was present but only partially performed, thus mating was not usually successful.

Where a motherless female was successfully impregnated, her maternal behaviour towards her own offspring was completely abnormal, ranging from indifference to outright abuse.

Other experiments have shown the importance of peer interaction for normal social development. In the "together-together" experiments, infant monkeys are separated from their mothers at birth and reared in groups of like-aged peers (HARLOW & HARLOW, 1962; CHAMOVE, ROSENBLUM & HARLOW, 1973; SUOMI & HARLOW, 1975). As with monkeys reared in isolation, monkeys raised with peer groups showed high levels of self-orality but clinging behaviours are directed towards each other for comfort and in response to threat. Aggressive behaviours and sexual behaviours develop normally; HARLOW therefore concludes that, for rhesus monkeys at least, the importance of the social milieu for normal development cannot be minimized.

If the monkeys are separated from the mother after the development of an affectional tie, the effects are immediate for both mother and infant. JENSEN & TOLMAN (1962) describe the immediate effects in rhesus monkeys:
"the mother becomes ferocious towards attendants and extremely protective of her infant. The infant's screams can be heard over almost the entire building. The mother struggles and attacks the separation. The baby clings tightly to the mother and to any object which it can grasp to avoid being held or removed by the attendant. With the baby gone, the mother paces the cage almost constantly, charges the cage occasionally, bites at it, and makes continual attempts to escape. She also lets out occasional hissing-like sounds. The infant emits high-pitched, shrill screams intermittently and almost continuously for the period of separation."

(P. 229).

The long term effects of separation in primates vary among species. ROSENBLUM & KAUFMAN (1968) found that bonnet macaque infants do not show severe disturbance following maternal separation, pigtail macaques however show an affective disturbance resembling depression in humans (KAUFMAN & ROSENBLUM, 1967; ROSENBLUM, 1978). Three stages of behaviour are described, namely, 'agitation, depression and recovery', the stage of agitation persisting for 24-36 hours, depression for the following 5-6 days, and gradual recovery thereafter over a period of one month, although not returning to levels typical of an infant of the same age (21-26 weeks) which had not been separated.

Following reunion with the mother, there was a marked increase in clinging and physical closeness exceeding that found in dyads without the separation experience. Similar patterns of behaviour are
described for the rhesus monkey (Hinde & Spencer-Booth, 1971; Hinde, Leighton-Shapiro & McGinnis, 1978). As in the pigtail study, the mother was removed, leaving the group otherwise intact. Initial behaviour was acutely disturbed and subsequently very depressed. Low levels of substitute care were elicited for the duration of the separation but upon reunion after five or six days, behaviour was disturbed, suddenly swinging from relaxed to very upset and persisting for periods of up to two years following separation. The disturbed behaviour comprised maintaining proximity to the mother more than controls and more timid behaviour in a strange environment. Where infants were separated on more than one occasion, the effects were cumulative.

There are significant individual differences in rhesus responses to separation; Hinde & Spencer-Booth (op. cit.) observe that the degree of distress during and after separation is correlated with the frequency of rejection by the mother both before and after separation.

Reactions to maternal separation are therefore correlated with the acceptance of the infant by other non-maternal females (who may even begin to lactate to suckle the adopted infant); with the presence of peers, and with the degree of rejection shown by the mother towards the infant before and after separation.

As Cairns (1977) points out, adaptation, both physiological and social, to the new circumstances is precisely the response that would be predicted from a functional model of attachment. After the initial increase in intense responses to separation, cyclic internal
states such as hunger and fatigue take over. The rapidity of the habituation to the changed circumstances reflects the fact that "prolonged activation and arousal would be as hazardous to survival as no activation at all." (p. 9)

The compromise, as observed in the rhesus and pigtail, is sufficient for biological survival in most cases, although rates of mortality are higher than in controls, but socio-emotional development may be impaired.

In the next section, the significance of the evidence from primate studies for humans will be considered.

3.3 From Mammals to Man

Before beginning a consideration of human attachment behaviour, the threads of the evidence presented thus far can be drawn closer together. In the earlier discussion of bonding in infra-human mammalian species, bonding was defined as the unilateral affectional tie between the mother and infant developing soon after birth during some critical sensitive period, probably defined endocrinologically. Attachment behaviour was defined as the reciprocal affectional tie between a mother and her infant, developing over time to maintain proximity for the purpose of survival.

During the 1970s the concept of bonding, predicated upon a 'maternal sensitive period', has been applied to human mothers and infants by KLAUS and KENNELL and their colleagues. As will be shown, their
findings have not been universally accepted. However, it now behoves a discussion of attachment in humans to include consideration of the studies on early bonding, sketching in the parallels to be drawn with early maternal behaviour in other mammalian species. Similarly, studies of attachment behaviour in primates sets the scene for the following ethologically-oriented account of attachment in humans. It is BOWLBY's contention that "from lowest primates to Western man a continuum can be discerned" (BOWLBY, 1969, p.245). Thus in the simpler societies such as the hunters and gatherers, the infant is carried on the mother's back in a manner akin to that seen in the gorilla, whereas in the lower primates the infant must do all the clinging without support from the mother.

The strongest evidence for a biological continuum comes from studies of separation. BOWLBY (1973) concludes that:

"the findings of the primate experiments .... leave no serious doubt that most of what is to be seen during and after a brief separation in human infants is to be seen also in infants of other species. Explanations of human responses that presume cognitive processes at a specifically human level are thus called into question."

(p.98)

The effects of separation in children, as will be shown, bear striking resemblances to those in related mammalian young. Differences, where found, tend to be of degree rather than kind, suggesting that separation-induced distress is a homology across related mammalian forms (CAIRNS, 1977). Species may nevertheless differ in their
ability to adapt to new circumstances with primates in general, and humans in particular, showing high levels of non-social and social plasticity in terms of biological survival, albeit with varying degrees of psychological integrity.

Having considered attachment from a phylogenetic perspective, an ontogenetic perspective will be adopted in the next chapter in consideration of attachment in the human infant.
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   1.2 Sensitive periods for human mother-infant bonding: The Klaus-Kennell Model
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SOCIO-EMOTIONAL DEVELOPMENT

CHAPTER 4 - BONDING AND ATTACHMENT: HUMAN INFANTS

1. EARLY BONDING IN HUMAN MOTHERS AND INFANTS

1.1 The concept of a 'sensitive period'

As indicated in the previous chapter, sub-human mammalian mothers and neonates instinctively behave in ways that promote proximity between mother and infant, thereby facilitating caretaking behaviour. Species-specific behaviour patterns of the infant seem to release maternal behaviours at a time when mothers appear to be particularly sensitive to such cues, cues which have survival value both for the infant and for the species. (CAMPBELL & TAYLOR, 1979).

Studies of the disruption of maternal caretaking behaviour in rats, herd animals and primates have led some researchers to speculate upon the existence of a homologous 'sensitive period' for the optimal development of mother-infant bonding in humans (KLAUS & KENNELL, 1970; 1976; KLAUS et al, 1970).

The term 'sensitive period', as defined by BATESON (1979) implies that

'an individual's characteristics can be more strongly influenced by a given event at one stage of development than at other stages' (p. 470).
Since a sensitive period may coincide with a period of rapid reorganization, a young mother having a baby, particularly her first, may be considered in transition from woman to mother, coincidentally passing through a sensitive period for the development of an affectional bond with her infant.

The term 'critical period' is often used in a similar sense, although this term implies some fixed period with a definable 'cut-off' point during which specific events must occur if development is to proceed normally (LAMB & HWANG 1982).

In both animal and human studies the term 'sensitive period' may be applied separately to the parent and the infant, indicating an optimal period either for the development of parent-infant bonding, or for the development of infant-parent bonding.

1.2 Sensitive periods for human mother-infant bonding:

The Klaus-Kennell Model

KLAUS and KENNELL propose that human species share with some animals the characteristic of developing an attachment or bond to the neonate as a result of early exposure to the infant during a sensitive period. It is their contention that the hormonal changes in pregnancy, labour and delivery 'prime' the human mother to behave maternally as soon as the child is born. If the mother is unable to realize this potential for maternal behaviour, due to separation from the infant, subsequent maternal behaviour will be impoverished.
Return to normal hormonal balances post-parturition marks the end of the sensitive period for bonding.

Extrapolating from this theoretical position, it was hypothesized that the obstetric practice of immediate post-partum separation would have a deleterious effect upon mother-to-infant bonding at the sensitive period for its development (KLAUS, JERAULD & KREGER, 1972). The converse of this hypothesis was investigated in a study by KENNELL et al (1974) in which a group of primiparous mothers were given extended post-partum contact in contrast to the standard obstetric practice of brief post-partum visual inspection, a short period of contact 6 - 12 hours later, followed by a 20 - 30 minute visit every four hours for the purpose of feeding. The extended contact group kept their naked neonate in bed with them for one hour post-partum, and received five additional hours of contact each day for three days. KENNELL et al reported that at one month and one year post-partum, mothers who had the extended contact were significantly more responsive to and interactive with their babies than were the mothers who had received the standard contact. Indices of the formation of a bond, according to the Klaus-Kennell model, are smiling, talking, kissing, fondling, gazing and other behaviours which seemingly maintain contact and express affection for the infant.

In follow-up studies, extended contact mothers were found to have more linguistic interaction with their children at two years of age (RINGLER, KENNELL & JARVELLA, 1975), which was associated with the children's speech and language comprehension at five years of age (RINGLER, TRAUSE & KLAUS, 1976). This was reflected in significantly higher IQ scores in the extended contact group at 42
months (KLAUS & KENNELL, 1976), and at five years (RINGLER TRAUSE & KLAUS, 1976).

There has been some support for the findings of KLAUS and his associates with respect to subsequent mothering behaviours. HALES, LOZOFF, SOSA & KENNELL, (1977) found more fondling, caressing, eye-to-eye contact and talking behaviours at 36 hours post-partum in another sample of primiparous Guatemalan women given extended skin-to-skin contact. Similarly, DE CHATEAU & WIBERG (1977) found significantly more 'en face' behaviours at three months post-partum in Swedish women given extended contact, compared with controls although no significant differences were found on 31 out of 35 measured variables. In addition, only 26% of controls were breast-feeding at three months compared with 56% of extended-contact mothers. Similar results with respect to the success and duration of breast-feeding are reported for a Guatemalan sample (SOSA, KLAUS, KENNELL & URRUTIA, 1976). However, CARLSSON et al (1979) found in another Swedish sample that by six weeks post-partum, the earlier advantages in breast-feeding had disappeared.

Finally, providing perhaps the strongest support for the KLAUS-KENNELL model, O'CONNOR, VIETZE & HOPKINS, (1977), found a significant association, in a sample of low-income primiparous women, between the amount of post-partum contact and parenting disorders such as non-organic failure-to-thrive, child abuse or neglect resulting in hospitalization of the child. Only one case of child abuse was reported in a sample of 143 mothers 'rooming-in' with their infants, compared with nine cases of battering, neglect or failure-to-thrive among 158 mother-infant pairs exposed to the standard post-partum practice.
The KLAUS-KENNELL model of human bonding has had a considerable impact upon present hospital obstetric practice, particularly in the U.S.A. where 'rooming-in' has largely replaced post-partum separation for full-term healthy babies. However, in a critique of theoretical issues, CAMPBELL & TAYLOR (1979) suggest that

'the conclusions and statements they have generated go beyond what the data actually prove' (p.4).

With respect to child abuse and psycho-social failure-to-thrive, CAMPBELL & TAYLOR point out that apart from early separation of mother and infant

'these studies were contaminated by a variety of uncontrolled variables such as poverty, family disorganization, parental psychopathology, and poor pre-natal care, all of which are associated with premature and other high-risk births as well as with distortions in parenting' (ibid). There is also the possibility of a 'Hawthorn-type effect here.

Similar criticisms of the studies of KLAUS & KENNELL are levelled by MACFARLANE (1977) and by HERBERT et al (1982). From their review of the literature, the latter conclude that "disproportionate weight is often given to the influence of these periods of separation." (HERBERT, SLUCKIN & SLUCKIN 1982, p.215), and in practical terms

"an attitude of therapeutic nihilism has been created in the minds of many workers by the concept of fixed and irreversible attributes" (ibid).
LAMB & HWANG (1982) conclude their review with the comment that "one could say that early contact has no enduring effects on maternal attachment, but may sometimes have modest short-term effects on some mothers in some circumstances" (authors' italics, p.31).

With respect to the initiation and maintenance of breast-feeding, CAMPBELL & TAYLOR point out that whilst breast-feeding is associated with fewer infections during infancy and with better nutrition among infants in developing countries, many other factors, apart from maternal feelings, will influence its initiation and maintenance.

Attempts to replicate the findings of KLAUS & KENNELL have not always been successful (OTTAVIANO, CAMPBELL & TAYLOR, 1979; SVEDJDA, CAMPOS & EMDE, 1979). TAYLOR et al (1979) report that an extra hour of post-partum contact was not associated with differential mother-infant interactions during feeding or with maternal perceptions of the infant on the BROUSSARD Neonatal Perception Inventory (BROUSSARD and HARTNER, 1972) at three days and one month. Their sample comprised a randomly assigned group of 100 white middle-class primiparous mothers with similar demographic and obstetric histories. Extra contact was associated with better interactions during feeding for mother-male dyads, but not for mother-female dyads. In a follow-up study, maternal perception of infant temperament at eight months of age using the CAREY Infant Temperament Questionnaire (CAREY, 1972) was not enhanced by early extended contact (CAMPBELL, MALONI & TAYLOR, 1979).
Apart from the practice of separating mothers and infants after birth, other factors in obstetric management have been shown to affect the development of the mother-infant bond.

**Medicalization of Childbirth**: OAKLEY (1980) studied the effects of the 'medicalization' of childbirth on women, 'medicalization' being her term for what STOLLER SHAW (1974) called 'the medical monopoly of childbirth care'. This includes the dramatic increase in numbers of hospital confinements in this century, from 15% of all births in 1927, to 66% in 1958 and 96% in 1974 (OAKLEY, 1980). The rationale underlying this increase, according to CHALMERS (1978) is that 'labour itself poses a particular threat to the safety of both mother and baby' (p. 44).

Concomitant with the increase in hospitalization for childbirth is the increased use of 'technology'. OAKLEY derives a composite score for technology to include amniotomy, induction of labour, episiotomy, pudendal block, pethidine, epidural analgesia, forceps delivery, Caesarean section, and general anaesthetic. In her sample of 55 first-time mothers, 29% had a high technology score, 46% a medium score and only 25% a low score. She comments 'Considering they were 'normal' primigravidae, the level of intervention in birth seems high'. According to CHALMERS (1978), such findings are not isolated; in England and Wales in 1974, induction preceded 39% of all births.

OAKLEY (1980) found that the degree of technology in childbirth was associated with the mother's feelings for her baby such that those
having medium/high technology scores had more negative feelings for their baby and were more dissatisfied with the birth of their child.

Only 42% of mothers reported having 'good' feelings for their baby, 46% had 'medium' feelings and 13% had 'poor' feelings. Immediately following the birth, 70% of the mothers were not interested in their babies (cf ROBSON & KUMAR, below). OAKLEY comments 'in a society where 96% of mothers have their babies in hospitals, a third have their labours induced, one in ten have their babies delivered by instruments, one in twenty have them removed by Caesarean section, and more than half are subjected to surgical incision of the perineum and other so-called 'minor' surgical procedures, the birth of a child becomes an occasion that from the 'patient's' point of view is much more like major surgery than a 'natural' family event. The similarity is that much more pronounced in the case of the first birth, where the incidence of surgery (e.g. induction of labour, forceps delivery, episiotomy) is much greater than among women who have had a baby before' (p. 220).

Effects of medication: Another factor is the effects of medication upon the responses of both mother and infant. In a review, BRACKBILL (1979) reports that pethidine and the phenothiazines produce sedation in the mother whilst the latter crosses the placental barrier and may also produce sedation in the infant. Effects on the infant are commensurate with dose and may result in behavioural degradation in motor coordination, habituation to auditory or visual stimuli, responsiveness to feeding and autonomic responses. These effects have been recorded for periods ranging up to one year after birth.
OAKLEY (1980) considers that probably only a minority of women demand childbirth without analgesia or anaesthesia in a move towards more 'natural' childbirth 'but they are usually dismissed within the medical frame of reference as deviant or esoteric responses'. Deference to medical knowledge was, she found, associated with a more traditional orientation to the feminine role and with social class, working women being more deferential than middle-class women.

Routine prophylactic administration of silver nitrate solution to the neonate in the first few minutes of life have been shown to interfere with the newborn's tendency to visually scan the environment and engage in brief but intense eye-to-eye contact with the mother (BUTTERFIELD, EMDE & PLATT, 1978). In the extra-contact studies cited above, silver nitrate administration was delayed and may therefore account for the reported increases in eye-contact and en face behaviour. The importance of eye-contact for the establishment and growth of a mother's relationship with her baby is stressed by ROBSON (1967) and supported by the studies of FRAIBERG (1974) of mothers with blind babies who reportedly felt detached and distant from their babies until they had learned other means of communication.

**Effects of Painful Labour and Type of Delivery:** TROWELL (1982) reports on the effects of Caesarean section upon the development of the mother-infant bond, compared with normal spontaneous vaginal delivery. Caesarean mothers in her sample presented a picture of women who had difficulties from the start of their baby's life, they shared 'the distress, crisis and sense of failure produced by
emergency Caesarean section' (p.87), had longer labours, more medication, were unconscious during delivery and had to begin a new relationship whilst suffering from the effects of major abdominal surgery. All appeared to suffer a period of amnesia following delivery and to take longer than controls to perceive their child. Although at one year there was no difference in the total number of interactions between mother and child, TROWELL suggests that mothers were responding to their own needs rather than to those of the child.

ROBSON & KUMAR (1980) investigated the immediate emotional reactions of primiparous women to their newborn infants. Although 40% of women recalled that their predominant emotional reaction when holding their babies for the first time was one of indifference, maternal affection was more likely to be delayed or lacking after delivery in women who had a forewater amniotomy, a dose in excess of 125mg of pethidine or who recalled that pain in labour had been worse than they expected. The chances of experiencing indifference were greatest in those having an amniotomy PLUS one of the two pain variables. By the seventh day post-partum, most women had begun to experience affection for their babies. Long term sequelae of initial maternal indifference was found in the expression of less affection and negative reports on an 'Attitude to Baby' scale. There was no long-term association with duration of breast-feeding or reported maternal aggression towards the babies (ROBSON, 1981). Finally, there was no association between initial maternal indifference and post-natal depression at three months post-partum (KUMAR & ROBSON, 1978a; ROBSON, 1981).
OAKLEY (1980) reports that 49% of the primigravidae in her sample found childbirth more painful than they had expected. Episiotomies were performed on 98% of her sample, and 52% of mothers had a forceps delivery. Instrumental delivery was found to be associated with the occurrence of 'post-partum blues' in the hospital.

Other studies support the findings that many women initially feel indifferent towards their babies and may even feel distinct distaste or disgust towards them (ROBSON & MOSS, 1970; GREY, CUTLER, DEAN & KEMPE, 1977; OAKLEY, 1980).

**Admission of Infant to Special Care**

According to RICHARDS (1978), 18.4% of all live births in England and Wales in 1975 were admitted to special care in the first few days of life. As might be expected with early separation, such mother-infant dyads engage in less eye-to-eye contact and mothers are less responsive to their babies when reunited. By three months, however, differences in social interaction have largely disappeared when compared with non-special care controls (WHITEN, 1975).

TROWELL (1982) concludes that all obstetric practices tend to produce anxiety but that this can be reduced if mothers and babies are permitted to be together all the time on the post-natal ward and, if the baby must be placed in a special care unit, 'then the mother should be there too, caring from her baby' (p.92).
The Father's Presence

MACFARLANE (1977) reports that although in the past decade fathers have been actively encouraged to be present during the birth, many hospitals still exclude them. He reports a recent study of induced births which showed that in a random sample of one hundred births, the father was only present in 18% of cases; closer analysis showed that more fathers were present in a non-induced group than in an induced group, but that mothers who were induced were more likely to have a forceps delivery, a practice from which fathers are commonly excluded.

The presence of the father was shown by HENNEBORN AND COGAN (1975) to result in a decrease in reported pain during labour and a reduction in the amount of medication prescribed.

1.4 Other influences on mother-infant bonding

According to the KLAUS-KENNELL model, the formation of the human mother-infant bond begins prior to pregnancy with planning to become pregnant; it continues during pregnancy with confirmation and acceptance of the pregnancy, foetal movement and accepting the foetus as an individual; post-partum, as illustrated in the studies cited above, it continues to develop through seeing, touching and caring for the baby. ROBSON (1981) addressed the pre-natal aspects of bond formation in her study. Using a self-administered questionnaire to measure maternal adjustment and attitudes during pregnancy and after delivery (cf KUMAR, ROBSON & SMITH, 1982), she found that higher negative feelings about being pregnant and about somatic
symptoms, and failing to perceive the foetus as a person at 36 weeks ante-natally were all associated with delayed onset of maternal affection.

1.5 Mother-Infant bonding: some conclusions

In the studies cited above, the importance of early mother-Infant contact is not in dispute. What is in dispute is the interpretation of results that implies the existence of a 'sensitive period' for the development of the mother-infant bond, homologous to the biologically-based bond found in placental mammals, and the implications that if a mother and infant have to be separated at birth, the infant is pre-disposed to psycho-social disadvantage. Such a notion militates against the satisfactory attachments developed by most foster or adoptive parents and infants (GARDNER, HAWKES & BURCHINAL, 1961), and the satisfactory psycho-social development of most premature infants (HOCK, COADY & CORDERO, 1973). CAMPBELL & TAYLOR (1979) caution that early contact may come to be regarded by some physicians as a panacea for all incipient psychosocial problems, and that mothers who must be separated from their infants 'may be burdened by guilt and initiate a self-fulfilling prophecy of negative interactions with the infant' (p.8).

Initial enthusiasm for the KLAUS-KENNELL model of mother-infant bond formation during a 'sensitive period' after birth has therefore waned given the paucity of successful replications. However, as a direct result of their investigations, obstetric management has come under increasing scrutiny in order to obviate deleterious side effects upon the developing mother-infant relationship. More recently, the
role of the infant in the development of the bond has become a focus of attention (cf BELL, 1974; LEWIS & LEE-PAINTER, 1974; CAIRNS, 1977).

WILSON (1980) concludes that whilst an attachment can develop in the absence of prior early bonding, as indicated by successful adoption, bonding provides an optimally strong foundation for the process of attachment that will serve as a basis for the child's future emotional growth.

In the following section, the theoretical framework of current attachment theory will be discussed and three important studies reviewed. In Section 3, the question of sensitive periods will be briefly resurrected before moving on to a review of the behavioural phenomena associated with attachment.
2. THEORETICAL BACKGROUND TO ATTACHMENT

2.1 Attachment and Dependency

Attachment as defined earlier refers to the highly selective relationship between an infant and its caretaker, usually, although not necessarily, as will be shown below, its mother. There has been some controversy among theorists of different orientations as to whether attachment and dependency are synonymous terms or conceptually discrete.

Dependency has generally been favoured by theorists subscribing to the Secondary Drive Hypothesis who consider that an infant becomes linked to his mother because she is the source of his physiological gratification and therefore acquires secondary reward value, (DOLLARD & MILLER, 1950). Thus dependency has an instrumental component through which a particular individual is important to an infant because she supplies his needs, and an emotional component inasmuch as there is probably only a restricted range of people who are capable of or available to supply these needs.

The attachment concept derives from the work of BOWLBY, to be described below, in which social tendencies are seen as primary rather than deriving from biological needs, as in the dependency model. Conceptually, the differences between the terms are illustrated by the specificity, duration and onset of attachment. With regard to specificity, attachment describes the affectional bond between an infant and another person, usually the mother, whereas
dependency implies a more generalised characteristic. As to duration, attachment refers to a lasting relationship without implying immaturity, whereas dependency usually refers to a transient relationship with implications of immaturity. Secondly, dependency is usually, although not essentially, seen as a unidirectional relationship in which only one of the participants is dependent, whereas attachment usually, although again not necessarily, implies a bi-directional tie. As to onset, dependency does not usually show a sudden onset but rather builds up over time, whereas attachment usually develops rapidly when basic conditions are fulfilled.

Qualitatively, SEARS (1972) suggests that the suddenness, passion, ardour and prolonged aspects of attachment differentiate it from dependency. GEWIRTZ (1972) argues that although both attachment and dependency can be accounted for in terms of an instrumental condition, either attachment or dependency responses coming under stimulus control, in attachment the responses come under the control of one person, and the two are in fact distinct phenomena.

BOWLBY (1969) also argues for a distinction between the two:

"In the early weeks of life an infant is undoubtedly dependent on his mother's ministrations, but he is not yet attached to her." (p. 278)

and:

"whereas dependence is maximum at birth and diminishes more or less steadily until maturity is reached, attachment is altogether absent at birth and is not strongly in evidence until after an infant is past six months." (p. 279)
In addition, BOWLBY argues that the 'value implications' of the term dependency are the converse of those conveyed by the term attachment; where being 'dependent' is regarded as disparaging, being 'attached' is regarded as admirable. He suggests that dependency in personal relations is a condition that should be outgrown, whereas attachment has continued value.

For the purposes of the present exposition, the term attachment will be used to refer to the lasting bi-directional tie between an infant and mother, and will be regarded as both conceptually and qualitatively distinct from dependency.

2.2 Attachment and the Secondary Drive Hypothesis

The importance of the Secondary Drive Hypothesis, favoured by learning theorists and referred to above, began to be seriously undermined by the work of the ethologist LORENZ (1957) on imprinting in birds. LORENZ was able to show unequivocally that attachment behaviour develops in ducklings, goslings, and other precocial birds, in the absence of food or other conventional rewards, the young birds clearly demonstrating a tendency to follow, within certain sensitive periods, any moving object in their visual field. Subsequent experiments have shown that other animals, including mammals, can be similarly imprinted. (See Chapter 3, Section 2.4).

HARLOW's experiments with rhesus monkeys, reported above, also contributed to the decline in importance of the Secondary Drive Hypothesis as an explanation for attachment. Differential behaviours of infant monkeys towards a lactating surrogate mother, compared with a
non-lactating terry-towelled surrogate, led HARLOW & ZIMMERMAN (1959) to conclude that:

"contact comfort is a variable of significant importance in the development of affectional responsiveness to the surrogate mother and that nursing appears to play a negligible role."

With respect to the human infants, a number of studies using a variety of paradigms have shown that infants will express attachment behaviours to figures who do not fulfil their physiological needs but provide social reinforcers (e.g. BOWER, 1966; BRACKBILL, 1958; RHEINGOLD, 1969b; SCHAFFER & EMERSON, 1964).

In his discussion of the Secondary Drive Hypothesis, BOWLBY (1969) concludes:

"all the evidence suggests that, in whatever form it is held, the Secondary Drive theory of the child's tie is mistaken and that, even in mammals, food plays only a marginal part in the development and maintenance of attachment behaviour." (p. 274).

2.3 Attachment and Attachment Behaviours Defined

"An attachment may be defined as an affectional tie that one person or animal forms between himself and another specific one - a tie that binds them together in space and endures over time. The behavioural hallmark of attachment
is seeking to gain and maintain a certain degree of proximity to the object of attachment, which ranges from close physical contact under some circumstances to interaction or communication across some distance under other circumstances.

Attachment behaviours are behaviours which promote proximity or contact. In the human infant these include active proximity and contact-seeking behaviours such as approaching, following and clinging, and signalling behaviours such as smiling, crying and calling."

- AINSWORTH & BELL (1970) (p.50)

2.4 **BOWLBY's Theory of Attachment**

The work of BOWLBY (1958, 1969, 1973, 1980) marks what KUHN (1962) terms a 'paradigm shift' in research into social development. BOWLBY's model is essentially eclectic, stemming from the convergence of a psychoanalytic orientation with the biological discipline of ethology, borrowing freely from psychobiology, control-systems theory and PIAGET's structured approach to the development of cognition, and weaving the threads into a cohesive, comprehensive account.

In his preliminary statement, BOWLBY (1958) first used the term 'attachment' to describe the nature of a child's affectional tie to his mother, drawing on ethology and psychoanalysis to account for the origin of the affectional bond. FREUD (1938) described the mother-infant relationship as:
"unique, without parallel, established unalterably for a whole lifetime as the first and strongest love-object and as the prototype of all later love relations for both sexes."

FREUD considered that by her care of the child's body, a mother becomes the child's first seducer, therefore her importance to the child derives not only from her gratification of his physiological needs, but also from her stimulation of the child's erotogenic zones. FREUD later moved away from the concept of secondary drive and developed the notion that special drives built into the infant during the course of evolution underlie the love relationship. This later notion was developed by BOWLBY into his hypothesis of 'Component Instinctual Responses', which incorporates the ethological concepts of instincts and fixed action patterns. According to BOWLBY, attachment is comprised of five instinctual responses, sucking, clinging, following, crying and smiling, which denote observable patterns of behaviour.

However, where FREUD postulated the instincts of sex and self-preservation as the motive force in attachment, BOWLBY argued that these instincts are not of themselves causal but that the conditions found necessary to activate a behaviour pattern are in fact their causes. These conditions may be either endogenous or exogenous in origin, and will serve as releasers of attachment behaviours. Consummatory stimuli of a comparable kind will often act as 'social suppressors' to terminate the behaviours.
In order to ensure survival, therefore, the developing organism must be equipped with an appropriate set of instinctual responses at each stage of ontogeny which serve to elicit the parental care necessary for survival. During the course of the first year, the five Component Instinctual Responses become integrated into attachment behaviour and act as social releasers of instinctual responses in mothers. This results in the maintenance of close proximity to the mother and provision of nourishment, both being crucial for the survival of the relatively helpless infant.

BOWLBY's theory was subsequently elaborated in his trilogy "Attachment and Loss" (1969, 1973, 1980), and whereas BOWLBY described his earlier version as 'a theory of component instinctual responses ...... the new version can be described as a control theory of attachment behaviour' (1969, p. 225).

Quintessentially, BOWLBY's thesis is that human attachment behaviour has biological roots which can only be fully comprehended within the context of Darwinian evolutionary principles. Thus the hallmark of attachment, according to AINSWORTH (1973) is behaviour that promotes proximity to or contact with the specific figure or figures to whom the infant is attached, such behaviour subserving the biological function of survival.

It may be the case that behaviour such as those described by BOWLBY as component instinctual responses in the infant form part of a more complex convergent evolution, in which the mother's perceptual awareness of such behaviours has become heightened leading her to selectively respond to infant behaviours such as smiling or crying.
BOWLBY argues that far from being a 'tabula rasa' at birth, the neonate is equipped with a number of simple behavioural systems not far removed from fixed action patterns. Such behaviour systems are species characteristic and have endured because they contribute to the survival of the species or population. Behavioural systems have predictable outcomes which serve biological functions. One such behavioural system is attachment behaviour, the predictable outcome of which is closer proximity to the principal caregiver, which may or may not be the biological mother, the biological function of such behaviour being protection.

The reciprocal of attachment behaviour is parental behaviour, thus infant and caregiver are adapted to each other, in an evolutionary sense, and attachment behaviour is adapted to an environment containing a caregiver. Departure from such an environment leads to the anomalies found in attachment behaviour in, for example, institutionalized rearing. Attachment behaviours are therefore the behaviours through which an attachment or bond is formed between the infant and caregiver and which subsequently serves to maintain the bond (AINSWORTH, BLEHAR, WATERS & WALL, 1978).

At about six months of age, the behavioural components of attachment behaviour become 'goal-corrected' and 'organized' in accordance with very primitive 'plans'. For example, a 'plan' might be to get into closer proximity to the mother if she moves too far away, using the behaviours at the infant's disposal. For the development of plans, attachment behaviours must necessarily depend
on the development of cognitive processes. BOWLBY (1969) suggests that infants have 'working models' and 'cognitive maps' which include inner representations of the self, the caregiver and the environment and that these become increasingly complex as a function of experience. Experience gives rise to 'expectations' concerning the mother's accessibility and responsiveness, and gradually permit the infant to tolerate longer periods of absence of the caregiver without undue distress.

Probably around the age of three years, attachment behaviour undergoes a further qualitative change as the child becomes less egocentric and capable of reciprocity through insight into the goals and plans of the mother. BOWLBY suggests that once insight has developed 'the groundwork is laid for the pair to develop a much more complex relationship with each other, one that I term a partnership' (1969, p.322).

BOWLBY (1969) and AINSWORTH, BLEHAR, WATERS & WALL (1978) divide the development of attachment into four phases, the first three phases occurring during the first year of life, the fourth phase at around the age of three. BOWLBY terms the first phase "Orientation and Signals without Discrimination of Figure"; AINSWORTH et al term it the "Initial Pre-Attachment Phase". The phase begins at birth and ends at 8-12 weeks of age. It is marked by orienting and signalling behaviours towards people in general and its passing is marked by the infant's ability to discriminate his mother from other figures on the basis of visual cues.
The second phase, "Attachment-in-the-making" (AINSWORTH et al, 1978) or "Orientation and Signals Directed towards One (or More) Discriminated Figure(s)" (BOWLBY, 1969), lasts to about six months of age, during which period attachment behaviours are directed towards specific figures.

The third phase, "Clear-cut Attachment" (AINSWORTH et al, 1978), or "Maintenance of Proximity to a Discriminated Figure by means of Locomotion as well as Signals" (BOWLBY, 1969), begins at about six months of age and lasts through the second year and probably into the third. During this phase the child's 'attachment to his mother-figure is evident for all to see' (BOWLBY, 1969, p.324), and 'Once formed, this attachment is amazingly persistent and is capable of enduring an extraordinary amount of absence, neglect or abuse - although these adverse conditions are likely to affect both the quality of a child's attachment relationship and his subsequent personality development' (AINSWORTH, 1973).

The fourth phase, termed "Formation of a Goal-corrected Partnership" (BOWLBY, 1969) is the phase described above as beginning around the age of three years. BOWLBY suggests that 'After children have reached their third birthday, however, they are usually much better able to accept mother's temporary absence and to engage in play with other children. In many children the change seems to take place almost abruptly, suggesting that at this age some maturational threshold is passed' (BOWLBY, 1969, p.252). As a result, children become increasingly able to feel secure with subordinate attachment figures such as teachers, provided that such figures are familiar and that the child is confident of his mother's whereabouts and
availability. Such behaviours continue through the early school years, although in attenuated form, unless the child is unwell or frightened, in which case he seeks immediate contact with his mother.

Although BOWLBY (1969, 1973) was specifically concerned with the attachment of a child to its mother, he nevertheless considered that other attachments developing throughout the life-span could be accommodated by the same model, later attachments attenuating, although by no means replacing, earlier attachments.

During adolescence, for example, sexual attraction to opposite-sexed peers begins, resulting in a continuum of strength of attachment ranging from severe reduction in attachment to the mother, to persistently strong attachment which may preclude the formation of other attachments. BOWLBY suggests that for most individuals attachment to parents continues into adult life, the attachment of daughters to mothers tending to be stronger than that of sons to mothers.

In adulthood, attachments may also form to groups or institutions, although at base the motivation for affiliation to groups may be based on attachment to a particular figure (BOWLBY, 1969; WEISS, 1982; MARRIS, 1982). In old age, attachments will inevitably be broken by bereavement (PARKES, 1972; BOWLBY, 1980). Attachment may then be directed towards the younger generations (BOWLBY, 1969).

The significance of BOWLBY's attachment theory is marked by the diversity of disciplines and approaches in which his attachment theory
now figures in addition to developmental psychology. PARKES & STEVENSON-HINDE, (1982) edit articles on attachment theory and child abuse, maternal depression, bereavement, suicide, neurosis and other mental disorders, and specific reading disability, a diversity welcomed by BOWLBY (1982) since 'No one research method can do more than throw a very narrow beam of light onto any problem area' (p.312) and 'in a field of great complexity in which useful experimental data are hard to come by, the most reliable conclusions are likely to be those reached when evidence from a multiplicity of sources is drawn upon' (ibid).

2.6 The Development of Attachment: Three Major Research Projects

Three studies have been selected for particular attention in this section since they are longitudinal studies aiming to provide comprehensive accounts of the development of attachment. They use widely differing samples one in Uganda, one in the UK, and one in the USA, and taken together, have arguably had the greatest impact on the subsequent study of attachment.

In the three studies to be reviewed here, the conditions necessary for the development of attachment are firstly, that an infant must be able to discriminate the mother (or other attachment figure) from other people; secondly, that the infant must be sufficiently developed cognitively to enable him to conceive of the permanence of a person. Criteria of attachment, according to BOWLBY (1969), during the first year of life are crying and following when the mother leaves, and greeting and approach when the mother returns. Other criteria include smiling at the mother, clinging to her when alarmed, and
using the mother as a base from which to explore. One or more of these criteria are employed in the following studies.

(i) The Glasgow Study: SCHAFFER & EMERSON (1964a)

In this longitudinal study, SCHAFFER & EMERSON followed up 60 infants who had been hospitalized, on the assumption that the hospitalization effects would be an exaggeration of the effects of separation seen in everyday life. Their criterion of attachment was therefore the infant's response to separation, from which they calculated a 'separation protest index' based on seven everyday situations such as being left alone in a room, being left in a pram outside a shop, or being left alone overnight in a cot. SCHAFFER & EMERSON looked at three parameters of attachment, namely age at onset, intensity of attachment, and breadth of attachment.

Firstly, with respect to age at onset of attachment, their findings confirmed the earlier findings of the cross-sectional study conducted by SCHAFFER & CALLENDER (1958) inasmuch as a sharp break occurred at about seven months of age, with infants below this age showing little or no upset, infants above this age showing considerable upset. Although the range for the age of onset was 22 weeks to 12 months, at the median age of seven months most babies focussed specifically on their mothers and would react negatively to strangers, whereas earlier anyone would suffice for comfort if the infant was upset.
Secondly, with respect to intensity of attachment, SCHAFFER and EMERSON looked for a correlation, at age eighteen months, between intensity of attachment and age at onset. Finding no significant relationship, they looked at relevant variables but found no correlation between intensity and demographic variables, or 'socializing' variables such as feeding, weaning and toilet training practices. In addition, they looked at four relationship variables, but found no correlation between intensity and maternal availability, a weak non-significant tendency for intensity to vary with exclusiveness of caretaking. To examine maternal responsiveness SCHAFFER & EMERSON generated a 6-point scale from leaving the infant indefinitely to always responding and, using this scale, they found a positive relationship between intensity and high maternal responsiveness such that strongly attached infants had highly responsive mothers, weakly attached infants had mothers who scored low on the responsiveness scale. Their fourth relationship variable was mother-infant interaction and again, SCHAFFER & EMERSON generated a 6-point scale to assess the level of interaction, from leaving the infant severely alone to continually interacting with him. Using this scale, they found a positive relationship between intensity and amount of stimulation such that highly stimulated infants tended to be strongly attached, infants who were left to their own devices tended to be weakly attached.

Thirdly, with respect to breadth of attachment, SCHAFFER & EMERSON failed to find the monotropic relationship postulated by BOWLBY. In their sample there was a monotropic trend in
71% of infants but 29% had formed multiple attachments. (Attachment figures will be considered in more detail below). Attachment was found to broaden with age such that by six months from the initial separation protest at about six months of age, 75% were attached to more than one figure, and by eighteen months from the initial protest, only 13% showed a single attachment whereas 33% had as many as five attachment figures. The additional attachment figures in the first month of attachment was the father in 27% of infants and many were also attached to siblings. SCHAFFER & EMERSON also considered whether breadth of attachment might preclude intensity of attachment but found that infants who were most intensely attached tended to have multiple attachments, whereas weakly attached infants tended to have fewer attachments. In other words, there was no finite 'amount of attachment'.

As a result of their study, SCHAFFER & EMERSON suggested a three stage theory of social development comprising an 'Asocial stage', in which the infant is merely concerned with obtaining optimal levels of stimulation; a 'Pre-social Attachment Stage', characterized by indiscriminate attachments and lasting to about seven months of age; and a 'True Social Attachment Stage' in which attachments are formed to highly specific figures.

Whilst the SCHAFFER & EMERSON study generated much research into attachment variables, it has nevertheless received criticism, primarily directed towards the 'Separation Protest
Index' which is not a direct indicator of attachment and only permits the inference of attachment in negative fashion. A positive index, such as that used by BAN & LEWIS (1974), builds up an 'Attachment Profile' of proximal attachment behaviours (touching, proximity) and distal attachment behaviours (looking, vocalizing) which permits investigation of individual differences in attachment as well as sex differences. Arguing that the 'Attachment Profile' is a more valid indicator than the 'Separation Protest Index', BAN & LEWIS used it to show that there were no sex differences in proximal behaviours, but that twice as many proximal behaviours were directed towards the mother than the father. There were however sex differences in distal behaviours, with male infants showing more distal behaviours than females, significantly more of such behaviours being directed towards the father than the mother.


In this observational study, AINSWORTH visited 25 mothers with 27 infants at fortnightly intervals for about seven months. The families were of the Ganda tribe of Uganda and AINSWORTH made her observations in the afternoons when it was customary for the women to rest and receive visitors after their morning's work. In this situation, AINSWORTH noted, infants were either held or left to move about if mobile, consequently she was able to observe differential responses to mothers and other adults. The infants ranged in age from 6 to
15 months by the end of the study, and all but four infants were then closely showing attachment behaviour. AINSWORTH reports that attachment was manifested by the infant crying when the mother left the group as well as by 'reunion' behaviours including smiling, raising the arms and 'crowing' with delight when she returned. These attachment behaviours were present by six months of age and grew more pronounced, to include crying when left alone or with strangers, from six to nine months of age. With increasing mobility, infants tended to follow the mother when she left, and crawl to meet her upon her return. Clinging upon reunion, or if alarmed, also increased during this period as well as attachment behaviours towards the father or other familiar adults.

AINSWORTH also observed that once an infant is able to crawl, he makes brief excursions from the mother's side in order to explore and play, returning periodically for reassurance of her presence. If the infant is frightened or the mother moves away the infant attempts to regain proximity without delay. By eight months of age, most Ganda infants demonstrated this pattern. In a later study, AINSWORTH & WITTIG (1969) confirmed the use of the mother as a safe base from which to explore in a procedure which has come to be known as the 'Strange Situation', to be discussed below. Similar findings are reported by ANDERSON (1972) in a study of the exploratory behaviour of children aged 15 to 30 months around their mothers seated on park benches in London.

As a result of her observations, AINSWORTH suggested that
five phases occur in the development of attachment, firstly, an undiscriminating phase of responsiveness, secondly, a phase of differential responsiveness at close range, followed by a phase of differential responsiveness at a distance; fourthly, usually coincident with the development of locomotion, a phase actively initiated by the infant through following or other contact behaviours; finally, usually during the last quarter of the first year, a phase in which 'stranger anxiety' emerges, or intensifies, resulting in clinging to the attachment figure when under stress. 'Stranger anxiety' will be considered in more detail below since it has generated a large corpus of research and is the subject of much debate.

(iii) The Washington Study: YARROW (1967)

In this study, YARROW observed a sample of 100 infants in foster homes and found five levels of 'object relationship'. Firstly, the appearance of 'social awareness', in which the infant discriminates social from non-social objects, occurred in 65% of the sample at one month of age. Secondly, selective responsiveness to familiar and unfamiliar figures, which occurred in 66% of the sample by six months of age. The third level describes the development of 'confidence relationships' in which the infant appeared to expect soothing when distressed or anxious, occurring at three months of age for 50% of the sample, and the capacity to delay gratification, appearing at about eight months of age in 31% of the sample. The fourth level, termed 'separation anxiety', occurred in 58% of infants at five months when moved to their foster homes,
and was present in 100% at eight months of age. The fifth level, 'stranger anxiety', occurred in half of the infants at about eight months of age, although it was only in mild form in half of the cases. YARROW's criterion of attachment was the infant's selective attention to the mother-figure in preference to a stranger.

Taken together, these three studies confirm BOWLBY's thesis that cognitive and social development are inextricably intertwined and that a phase of undifferentiated responsiveness precedes a phase of discriminating and social responsiveness, which is itself followed by a phase in which the infant's attachment becomes more active and intense.

Whereas studies such as those described above have been longitudinal in design and concerned with the development of attachment as a function of age, other studies, oriented more towards experimental manipulation, have examined particular aspects of attachment behaviour in greater depth. Such aspects include 'stranger anxiety' or 'fear of strangers', and 'separation anxiety', each of which will be considered in turn, with their respective corpora of studies, together with the paradigm designed by AINSWORTH and her colleagues known as the 'strange situation'. This paradigm has been used extensively to investigate the development of attachment, its relationship to other variables, and patterns of attachment. Before considering these aspects, attachment figures and objects will be briefly examined and the theoretical basis for the existence of a 'sensitive period' for the development of attachment in humans will be reviewed.
In his 1958 paper, BOWLBY referred to the bias of a child to attach himself to one figure as 'monotropy'. It is his view (BOWLBY, 1969), that a child can have more than one attachment figure, but that there will be a principal attachment figure, not necessarily the biological mother, overriding the importance of subsidiary attachment figures. He considers that a substitute mother may be at a disadvantage if, as occurs in other species, mothering behaviour is mediated by hormonal levels following parturition.

SMITH (1980), in a review of the literature on shared care, argues that 'there are no strong evolutionary grounds for expecting human infants to be monotropic, and that empirical data on shared care leads to its rejection .... these lines of argument are however consistent with there being limits on the number of viable caretaker-infant relationships' (p.373). Adopting a similar sociobiological perspective, PORTER & LANEY (1980) suggest that it may be in the interest of several conspecifics, but not an unlimited number, to play a part in caretaking, thereby increasing their inclusive fitness through the time and energy thus invested. Data on shared care, as occurs, for example, in the Israeli kibbutzim between the parents, the metaplot and the night nurse, does not adversely affect attachment to the parents (RABIN, 1965; MACCOBY & FELDMAN, 1972). Similarly, in agricultural or peasant communities, child care is often shared and results in the formation of multiple secure attachments (SMITH, 1980). In the Ganda study, described above, AINSWORTH (1963, 1964, 1967) found that by the age of 9-10 months, most infants had developed multiple attachments, although following
behaviour tended to be confined to the principal attachment figure. Even in Western societies, as in the SCHAFFER & EMERSON study, discussed above, a monotropic trend was found in only 71% of infants, 29% having formed multiple attachments.

In both the AINSWORTH and SCHAFFER & EMERSON studies, the most frequently reported subsidiary attachment figures were the father and older siblings, and breadth of attachment was positively related to intensity of attachment, with weakly attached infants being more likely to have a single attachment figure.

With respect to comparative attachment to mother and father, KOTELCHUCK (1972) and ROSS, KAGAN, ZELAZO & KOTELCHUCK (1975) looked at separation protest in infants in both the home and the laboratory using AINSWORTH's 'strange situation'. They found no major differences either at home or in the laboratory, 70% of infants showing attachment to both parents, 23% showing attachment to the mother only, 9% to the father only, and 7% to neither.

RICCUITI & PORESKY (1973) investigated attachment to caregivers in an infant nursery in the first year of life; they found neutral responses when the mother left until infants were 7 months of age, then increasing distress on exposure to a stranger, compared with none or minimal distress, when left with the caregiver.

Attachment behaviour may also be directed towards inanimate objects. In the SCHAFFER & EMERSON study, more than one-third were attached to a special cuddly toy and one-third sucked their thumbs. Thumb-sucking was found to appear in the first few weeks
of life, but attachment to a cuddly toy rarely appeared before the age of nine months in a study conducted by STEVENSON (1954). Another common attachment object is a blanket, often in association with thumb-sucking and possibly also with attachment to a cuddly toy (PASSMAN & WEISBERG, 1974). The presence of an attachment blanket in the latter study was found to alleviate distress in the absence of the mother.

According to BOWLBY (1969), there is no reason to suppose that attachment to an inanimate object affects attachment to people, on the contrary, the absence of any interest in soft toys may give cause for concern and presage difficulty in forming later social attachments (STEVENSON, 1954; PROVENCE, 1978). Attachment to inanimate objects may last well into the school years and only gives rise to concern if it predominates over human attachments (BOWLBY, 1969). Otherwise, such attachment should be seen as transitional 'substitute objects'.
3. **Sensitive Periods for the Development of Attachments**

As indicated in Section 1, the question of sensitive periods for the development of attachments in man arises from the establishment of sensitive periods for its development in animals.

As the major research projects outlined above indicate, a distinctive break occurs in infants' social behaviour at about 6-8 months, with infants suddenly manifesting negative social behaviour or fearfulness to a given stimulus which had not hitherto had such an effect. Stimuli eliciting fear fall into two major categories, firstly, suddenness or intensity of a stimulus, secondly, unfamiliarity of a stimulus.

With respect to unfamiliarity, it was HEBB (1946) who suggested that familiarization, as in the perceptual learning paradigm, requires a period of exposure to a stimulus. This permits an infant to construct a schema or central model of a stimulus so that if a novel stimulus is subsequently presented, which is discrepant from the original, it results in potentially negative affect. HEBB considered that since the negative affect could not be attributed to the stimulus per se if it was not actually or potentially harmful, it must be related to the sensory event, the perceived discrepancy violating expectations based on cell assemblies and resulting in discomfort.

HUNT (1961) suggested an hypothesis of 'incongruity motivation' based on the Hebbian notion of discrepancy. He suggested that an individual checks new information against schemata for possible
discrepancy; where there is a perfect fit, there is no discrepancy, and
the stimulus is uninteresting because it contains redundant
information; where some incongruity is perceived together with some
familiarity, it leads to an orienting response to reduce incongruity to
an optimal level of stimulation, hence it is motivating. Where the
degree of incongruity is too great for reconciliation, it results in an
aversive condition experienced as fear.

In the HEBB-HUNT paradigm, fear of strangers should not therefore
occur before formation of schemata. In the studies conducted by
SCHAFFER & EMERSON (1964), AINSWORTH (1967) and YARROW
(1967), phases approximating those outlined above were established
with infants only showing behaviour typical of fear when strangers
could be positively discriminated from familiars. The age at which
fear occurs varies from as early as six months, the majority
exhibiting fear by eight months. By twelve months of age, most
infants exhibit distress at being separated from the mother. As a
result of fear of the unfamiliar, or loss of the familiar, the infant is
less likely to make an attachment to a new figure.

It is upon evidence such as this that arguments for the existence of
a sensitive period for the development of attachment are predicated
with those of an ethological orientation claiming that the emergence
of fearfulness marks the end of the sensitive period. BOWLBY (1969)
concludes:

'The fact that by the end of a half-year the elements of
attachment behaviour are clearly established in many infants
suggests that during the preceding months - fourth, fifth

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and sixth - most infants are in a high state of sensitivity for developing attachment behaviour. Beyond a general statement of this kind it is not possible to go.1 (p. 383)

3.1 Fear of Strangers, Separation Anxiety and Attachment Behaviour

The early negative social reactions of fear of strangers and separation anxiety, according to SPITZ (1950, 1955, 1965), are components of the single response which he terms 'eight-months anxiety'. This conclusion is based upon his observations that withdrawal behaviour begins in most infants at about eight months of age. SPITZ considers that withdrawal from strangers cannot be due to fear since the stranger cannot have caused the infant pain or 'unpleasure', it is rather a form of separation anxiety since the infant is reacting to the fact that his mother has left him, rather than that he is confronted by a stranger. In a critique of SPITZ's position, BOWLBY (1969) argues that SPITZ is mistaken in his basic premise that fear develops as a result of experiencing pain or 'unpleasure', but rather it is strangeness per se that is the cause of fear. BOWLBY argues that the two reactions, fear of strangers and separation anxiety, are distinct responses since they appear independently of one another in time and can be manifested independently - for example, an infant may show stranger anxiety in the physical presence of his mother. In the major research projects discussed above, SCHAFFER & EMERSON (1964), AINSWORTH (1983, 1967) and YARROW (1967) all take the view that separation anxiety and fear of strangers are two distinct, though related, forms of behaviour.
Since considerable research effort has been directed towards these early negative social behaviours, each will now be considered separately with its respective corpus of studies.

3.2 Fear of Strangers: a review

As indicated above, fear of strangers has been considered by some to reflect the infant's increasing social and cognitive discriminative abilities (e.g. SCHAFFER, 1966), and interpreted as derivative from the child's attachment to the mother (BOWLBY, 1969; AINSWORTH, 1967), and/or his fear of separation from her (SPITZ, 1950, 1955, 1965). The stimulus incongruity hypothesis in the HEBB-HUNT paradigm, outlined above, has been criticised because of certain explanatory inadequacies, LEWIS and BROOKS (1974) argue that not all human strangers elicit fear, children, for example, do not elicit fear. Secondly, insofar as a stranger represents a novel stimulus, he should be interesting rather than fear-provoking; thirdly, they argue that degrees of discrepancy, as suggested in the paradigm, cannot be measured. Finally, the incongruity hypothesis would predict that as soon as a novel stimulus can be discriminated an infant should display fear of it, whereas attachment studies show that infants do not display fear until about one month after perceived discrimination results in formation of attachment (cf SCHAFFER, 1966).

RHEINGOLD & ECKERMAN (1973) were the first to challenge the universality of fear of strangers on both theoretical and empirical grounds. Theoretically, they argued, why should an infant fear his own species when he does not fear strange objects; empirically, they observed that infants do not uniformly show fear of strangers, although
in laboratory conditions they may well show fear of strange procedures. Other studies have since confirmed that fear of strangers is not a universal reaction (e.g. CORTER, 1973). ROSS (1975) reports that fearful or cautious reactions to adult strangers disappear rapidly as the adult becomes familiar. If strangers were active rather than passive, and talked to the infant or offered toys, they were rapidly approached by the infant (ROSS & GOLDMAN, 1975), although BRETHERTON (1978) found that infants were initially wary before beginning to interact with strangers, showing no distress after approximately eight minutes exposure.

RICCUITI (1974) makes the point that infants' reactions to strangers contain multiple parameters, a behavioural parameter of approach/avoidance, an arousal/activation parameter and an hedonic parameter of pleasure or displeasure.

In his review of the stranger reactivity literature, HORNER (1980) states that two basic methods have been used to study infants' reactions to unfamiliar adults, namely 'stranger-controlled' and 'infant-controlled' confrontations, each of which appears to elicit different responses.

"In 'Stranger-controlled' confrontations the stranger determines the manner and tempo of encountering the infant .... simply described the method involves a somewhat point-blank approach toward the infant by the stranger" (p.205).

The procedure usually divides the approach of the stranger into a series of steps, bringing the stranger closer and closer until physical contact is achieved. SCHaffer's (1966) procedure, for example, comprised:
Step 1. E in visual field, stationary, looking at infant.
Step 2. E smiles, talks to infant, but does not move.
Step 3. E approaches infant whilst talking and smiling.
Step 4. E makes physical contact with infant and extends arms.
Step 5. E offers to pick up infant and sit on knee.
Step 6. E picks up infant and sits on knee.

'Fear' was operationally defined in SCHAFFER's study as whimpering, crying, gaze aversion, drawing back, moving away, trembling lips, or hiding face, all measured on a 6-point scale. Using this procedure, SCHAFFER found that fear of strangers began at about 15-19 weeks, some four weeks after the development of a specific attachment to the mother, the infant's reaction being related to the number of people in his social milieu.

Other studies have shown that the infant's negative reaction to strangers begins anywhere from three to ten months, but usually after the 6th to 7th month the reaction includes increased sobering, wariness or outright fear (AINSWORTH, 1967; TENNES & LAMPL, 1964; BRONSON, 1972). MORGAN & RICCUITI (1969) consider that fear of strangers peaks in the second year rather than at about nine months, as indicated by the other studies.

Some studies, such as that of RICCUITI (1974), involve the mother leaving the infant either alone or with a caretaker, then observing the stranger's approach. However, in such procedures there is a confounding effect between the mother leaving and the stranger's approach.
A further difficulty encountered in the 'Stranger-controlled' paradigm is that most studies have been cross-sectional in design. EMDE, GAENSBAUER & HARMON, (1976) suggest that the composition of the sample affects the interpretation of results; they conducted a cross-sectional study at monthly intervals and found no evidence of universality in negative reactions. However, when the same infants were examined longitudinally, there was evidence that each infant passed through a stage of negative reaction, thus confirming the longitudinal findings of SCHAFFER (1966) and TENNES & LAMPL (1964).

Use of the 'Infant-controlled' paradigm, however, does cast doubt upon the universality of the negative reaction:

"In contrast to the Stranger-controlled method, the Infant-controlled method entails a passive rather than active confrontation of the infant by the stranger. With this method it is the stranger who, once making an appearance, usually remains stationary while the infant is given active control over the manner and tempo by which the encounter with the stranger is made. Moreover, in contrast with the Stranger-controlled studies, Infant-controlled studies have generally permitted infants unhindered physical access to their mothers as well as substantial space for acquainting themselves with the stranger." (HORNER, 1980, p.207).

This design was used by ROSS (1975) and ROSS & GOLDMAN (1977), strangers, with a toy beside them, being placed about 11 feet away
from the infant and the mother. Half of their infants had a new stranger for each trial, half had the same stranger; half of the strangers were active, half passive. They found that significantly more infants approached the active stranger than the passive stranger, all approaches being made via the toy. ROSS & GOLDMAN suggest that the passive stranger is a discrepant stimulus for the infant since normally, strangers do interact with infants.

Some studies have employed both methods; KLEIN & DURFEE (1976), SROUFE, WATERS & MATAS (1974) and HORNER (1980) all gave infants prior contact with the 'stranger' and found that generally infants were prepared to interact with the stranger during the Infant-controlled part of the procedure. BRETHERTON (1978) found no differences between the two procedures, positive behaviours towards the stranger exceeding negative behaviours under both conditions.

HORNER (1980) concludes that longitudinal studies using the Infant-controlled paradigm are now required and that efforts should be made to synthesize findings from the two approaches in order to find some common operational definition of 'fear' and to examine the role of the mother during such encounters.

Clearly, a number of inconsistencies are found in the data in the 'fear of strangers' paradigm, including control of the situation, spatial distribution of infant, mother and stranger, and whether such studies are conducted cross-sectionally or longitudinally. Such considerations lead RHEINGOLD & ECKERMAN (1973) to conclude that the 'fear of strangers' paradigm is unreliable and unstable. BRONSON (1972) suggests that a dual process should be used in interpretation of aversive
reactions to strangers; prior to nine months of age reflecting a 'wariness of the unfamiliar', as in traditional cognitive explanations, and after nine months reflecting learned attitudes carried over from previous disturbing encounters. A similar position is taken by LEMLY & SCHWARTZ (1979) who argue that for the two-year old, the child's evaluation of an experience with a stranger will be a function of age, situational context and antecedent individual differences in temperament and experience. PLOMIN & ROWE (1979) also suggest that individual differences in social behaviour should be taken into account, differences that may be genetically based. BAKER (1981) agrees that differences in children's reactions to strangers are related to individual differences in temperament, such that children rated as temperamentally difficult react more negatively towards strangers as a result of being less securely attached.

The safest conclusion to be drawn about an infant's fear of strangers is that, dependent upon rate of cognitive development, individual differences in temperament, and previous social experience, infants generally pass through a phase in which strangers are initially seen as potentially threatening, but in the physical presence of the mother and active friendly approaches by the stranger, they will come to be evaluated as non-threatening and consequently will be engaged in social interaction.

3.3 Wariness and/or Fear of Strangers: A debate

The term 'wariness' has been used in the 'stranger anxiety' literature both as a synonym for 'fear of strangers' and to explain infants' reactions to strangers at a level below that warranting description as
'fear'. At the lower level, behaviours subsumed under the term 'wariness' include sobering of expression, gaze aversion, or withdrawal, but stopping short of indicators of frank distress such as crying. There has been some debate as to the value of wariness as an explanatory concept independent of fear, although most researchers agree that developmentally, before the expression of fear, infants show a marked diminution in positive responses to strangers, and that even when fear of strangers is full-blown, sequentially it is preceded by a contemplative caution (SCHAFFER & EMERSON, 1964; SCHAFFER, 1966; MORGAN & RICCUITI, 1969; EMDE et al, 1976). During this period, it is generally assumed, some cognitive work is involved in evaluating the 'stranger' as familiar or unfamiliar, as in the 'discrepancy hypothesis' discussed above.

A more important debate centres on whether wariness or fear can be viewed as a 'milestone of normal development', possibly even as a major 'developmental organizer', or whether it is an artifact (BATTER & DAVIDSON, 1979; SROUFE, 1977). In their review of the literature, BATTER & DAVIDSON (1979) found that whilst outright fear is rarely observed, negative reactions to strangers are amply confirmed, although there is 'considerable variation with regard to reported age of onset and frequency of occurrence' (p. 104). They therefore conclude that wariness should be viewed as a 'developmental organizer' to integrate cognitive, social and emotional development.

SROUFE (1977) also argues in favour of retention of 'wariness' as a developmental construct; although 'fear' as a response to stranger approach can be diminished and possibly eliminated by contextual management (SKARIN, 1977; RHEINGOLD & ECKERMANN, 1973; KLEIN
Sroufe and his colleagues have found that wariness, as exemplified by gaze aversion, correlates with an acceleration in heart rate, gaze being resumed when heart rate returns to base-line levels (Sroufe & Waters, 1977; Sroufe, Waters & Matas, 1974; Waters, Matas & Sroufe, 1975). Similar reactions have been found by Campos, Emde, Gaensbauer & Henderson, (1975) and by Skarin (1977). Such increases in heart rate with gaze aversion only occur to strangers and are also correlated with orienting and attention behaviours. Sroufe argues that the discrimination involved in such responses "attests to the validity of the milder aversive responses" (1977, p. 736).

Bronson (1978), as indicated above, suggests a "dual process interpretation" for early negative social behaviour, with two distinct mechanisms at work; in the first six months of life wariness being attributed to unfamiliarity of a stimulus, but, with greater cognitive development, fear being a learned aversion carried over from previous disturbing encounters.

Wariness, as an initial hesitance, would however seem to be at odds with the affiliative behaviour of infants towards strangers, as observed in contextual management studies. Bischof (1975) has devised a systems approach to explain these seemingly opposite tendencies, specifying circumstances in which one tendency rather than the other will be expressed, to create a dynamic balance between an infant's tendencies to approach or withdraw. A recent study by Kaltenbach, Weinraub & Fullard (1980) suggests that wariness towards strangers is not unique to infants, but is characteristic of behaviour towards
Studies of definitive separations show that children go through stages of protest, despair and detachment, resulting in impairment of cognitive, social and emotional development (SPITZ & WOLF, 1946; ROBERTSON & BOWLBY, 1952; HEINICKE, 1956; HEINICKE & WESTHEIMER, 1966; DENNIS, 1973). Such effects are not, however, irreversible, given a radical change of environment with optimal levels of stimulation (DAVIS, 1947; SKODAK & SKEELS, 1949; DENNIS & NAJARIAN, 1957; SKEELS, 1966; KOLUCHOVA, 1972; TIZARD & TIZARD, 1971; TIZARD & REES, 1974; CLARKE & CLARKE, 1976).

Studies of short-term separation, such as arise with hospitalization (SCHAFFER & CALLENDER, 1959; SCHAFFER, 1971) or in everyday separations (SCHAFFER & EMERSON, 1964; AINSWORTH, 1963, 1967; YARROW, 1967) have shown that at about seven months of age, a sharp break occurs in infants' responses to separation. Below this age there may be some short-lived distress which can be ameliorated by attention from a friendly adult, but that beyond this age, distress is more intense, longer-lasting, and not readily alleviated by attention from a substitute caretaker. An infant will direct his efforts to recovering the attachment figure through crying, calling and following, insofar as he is able. According to BOWLBY (1973) and AINSWORTH, BLEHAR, WATERS & WALL (1978), during a separation, absence of the mother is not the critical variable, but rather it is the AVAILABILITY of the mother, or other attachment figure, that gives rise to anxiety. Thus, past experience becomes significant, since if it is an infant's expectation that his mother is unavailable, this will result in high anxiety, whereas the expectation that a
mother is available, or will definitely return, results in low anxiety. This gives rise to two patterns of attachment, 'anxious attachment' and 'secure attachment' (STAYTON & AINSWORTH, 1973), to be discussed further below.

TIZARD & TIZARD (1971) present a comprehensive account of anxious attachment in two-year olds reared in residential nurseries from less than four months of age. Comparisons were made between the reactions of these children to the approach of a stranger and departure of the caretaker, and those of a group of children reared in their families. Children reared in the nursery were found to be significantly more anxious in their attachments and more afraid of the stranger. When the caretaker left, the nursery children cried more and ran to be picked up on her return whereas the home-reared children tolerated their mother's departure and return with greater equanimity. In the stranger approach, only 8 out of 30 nursery-reared children would sit on the stranger's lap, compared with 16 out of 30 home-reared children. It was evident that the nursery-reared children had formed attachments to their caretakers but differed from the home-reared children in their confidence in their caretaker's availability.

Based on findings such as those cited above, the effects of short term separation have also been examined, as in the hospitalization studies of SCHAFFER & CALLENDER (1959), FAGIN (1966) and ROBERTSON (1958). It is clear from studies such as these that even brief separations from the mother activate separation anxiety, particularly in children who are not securely attached, resulting in immediate behavioural disturbance in the hospital setting, and
persisting for varying periods after the child has returned home. It is now widely accepted that a child's anxiety in this situation can be alleviated by paediatric hospital management in allowing the mother to stay with her child in the hospital, or, at the very least, providing free access to the child throughout the day.

Whilst such traumatic events as hospitalization are naturally going to arouse anxiety, particularly in an insecurely attached child, the question remains whether brief everyday separation will arouse such anxiety and whether such separations will summate over time to produce behavioural effects similar to those seen in children separated for longer periods. Everyday separations are inevitable with the advent of school, kindergarten or playgroup, and most children adapt quite readily to these dramatic environmental changes. Consequently it is to early daily separations, in infancy and the preschool years, that attention has been directed to assess the effects, if any, of separation due to factors such as maternal employment and substitute caretaking. Since the effects of early maternal employment is the focus of this thesis, a later chapter reviews the topic in more detail. Three studies are, however, pertinent to this consideration of separation anxiety.

MOORE (1963, 1964, 1969a and b) examined various stresses in childhood that potentially affect socio-emotional development, including separations from the mother for various reasons such as holidays, hospitalization, marital breakdown and maternal employment. In a longitudinal study of 233 London children from birth onwards, MOORE found that the chief variables to be associated with behavioural disturbance were the degree of stability in the home and
the stability of arrangements for substitute care. Even if separation
was for the purpose of a holiday spent with relatives, the commonest
behaviour of children under three was clinging to the mother upon
reunion, persisting in some cases for weeks after the separation. Of
ten children with unstable family relationships who had spent one or
more brief periods in residential care beginning in the first year of
life, eight children were maladjusted at eight years of age,
manifesting aggressive, uncontrolled behaviour. By contrast, 15
children from stable homes who had also been subjected to periodic
separation ranging from 5 to 23 weeks were not behaviourally
disturbed at age six and did not show the typical signs of insecurity
found in the children from unstable homes such as nail-biting, sleep
disorder and over-dependence.

Where children were separated daily from an early age due to the
mother's employment, substitute care tended to be unstable and the
children at age six were found to be more demanding, clinging,
fearful and dependent. Where substitute care began after the age of
three and was stable, the children evinced no emotional difficulties at
the age of six. Separation anxiety, in MOORE's study, is therefore
clearly related to the stability of a child's regime.

A study by BLEHAR (1974) examines attachment behaviour, using the
'Strange Situation' (to be described below), in middle-class children
entering stable day care before the age of three. BLEHAR found
that day care children cried far more during the mother's absence
than a comparable group of home-care children, and upon reunion
avoided the mother more. This pattern of behaviour, known as
anxious attachment, will be considered more fully below. With
respect to behaviour towards a stranger, day-care children increasingly avoided a female stranger, whereas home-care children became progressively more accepting of her. BLEHAR's findings have not been successfully replicated on all occasions, and her interpretation of her results has been criticised by LAMB (1976), inter alia, for attributing the observed effects to the day-care experience without examining the quality of attachment in these children prior to their admission to day-care.

DURFEE & KLEIN (1976) argue that separation is not a unitary variable, like MOORE (op. cit.), they consider that the effects of separation will be mediated by factors such as the characteristics of the child, the quality of the relationship with the mother prior to separation, and the age of the child at the time of separation. They compared three groups of infants aged twelve months with differing histories of separation. One group was only occasionally separated from the mother for short periods and left with a baby-sitter, the second group had been occasionally separated for longer periods whilst the parents went on vacation, the third group was left regularly for short periods whilst the mother worked or attended college. Using scales adapted from AINSWORTH's 'Strange Situation', they devised ten measures of the infant's distress upon separation and behaviour upon reunion but found there were NO differences in mean responses between groups. DURFEE & KLEIN suggest that the findings from earlier studies of institutionalized children have been broadly and indiscriminately generalized to separations such as those resulting from maternal employment. Like MOORE, they conclude that brief separations from the primary attachment figure need not be deleterious PROVIDED that the infant receives high quality substitute care.
The studies reviewed above indicate that separation from the mother is a stressful event resulting in anxiety to the child. However, the degree of tolerance of the stress is related to antecedent variables such as the quality of the mother-infant interaction, the stability of the home environment, the stability of the substitute caretaking, the child's temperament, and the age of the child at separation and the length of the separation. Where tolerance to such stress is lowered, levels of anxiety will be higher and will be manifested in attachment behaviour, and, in more serious cases, in behavioural disturbance. The question of whether separation is a stressful event for the mother is rarely addressed, however, in the later review of maternal employment, this question will be considered.

A certain amount of stress has been shown in animal studies to be beneficial in stimulating growth and learning (KRECH, ROSENZWEIG & BENNETT, 1960; ROSENZWEIG, KRECH, BENNETT & DIAMOND, 1962a; LEVINE, 1968). Anthropological studies, such as that of LANDAUER & WHITING (1964), show that stresses such as circumcision or ear-piercing in infancy result in differences of up to two inches in height. LEVINE (1956) believes that the stimulated infant, that is, one exposed to optimal levels of stress, is a physiologically different adult. He suggests the hypothesis that early stimulation reduces the emotional response of the adult to a novel situation, thereby improving psychological functioning under the potential stress of novelty.

It remains to be seen whether the parameters of 'optimal stress', in terms of tolerable separations from the mother, for the promotion of growth and independence can be set (cf MOORE, 1969b), or whether,
as BOWLBY (1973 claims, "the effects of separations from mother during the early years are cumulative and that the safest dose is therefore a zero dose". (p. 255).
4. **Experimental Studies of Attachment**

As indicated in the foregoing sections, two methods of studying aspects of attachment have been the 'stranger approach' to examine 'fear of strangers', and brief separations from the mother to examine 'separation protest' or 'separation anxiety'. However, AINSWORTH (1972) and BOWLBY (1969, 1973) argue that multiple criteria should be used to assess the strength and quality of attachment. AINSWORTH (1972) advocates use of positive behavioural indices of attachment, such as greeting on reunion, to supplement the negative indices in separation distress. Before considering the experimental procedure devised and used by AINSWORTH and her colleagues, a brief consideration will be given to operationalization of the concept of attachment.

4.1 **Operational definition of Attachment**

In the studies discussed thus far, attachment has been assessed either by an infant's reaction to the approach of a stranger, or to brief separation from the mother. According to COHEN (1974)

"An adequate operational definition of attachment must include demonstrative proof that a special relationship exists, this is probably best accomplished through a demonstration of selective responding. Thus in the case of human beings, a given behaviour should be considered as an index of attachment only if it is elicited by a few familiar people with consistently greater intensity and/or frequency
than by the many other representatives of the human species." (p.207).

Frequently, he comments, a comparison figure is either lacking or inadequate. In the 'fear of strangers' procedure, a period of habituation is therefore required to avoid misinterpretation of general social responsiveness.

In addition to selectivity, in concordance with AINSWORTH, he argues that a given behaviour should not be considered an index to attachment unless it also functions to promote proximity to the attachment figure, separation from whom will result in substantial disturbance. Thus smiling, crying in response to separation, use of the attachment figure as a safe base from which to explore, following and other proximity-seeking behaviours, all of which have been used as indices of attachment, do NOT, independently, adequately determine the strength of an attachment.

Similar considerations moved AINSWORTH and her colleagues to devise and standardize a laboratory procedure to study three behavioural patterns observed previously in the Ganda study. These patterns are use of the mother as a safe base from which to explore, distress in brief, everyday separations from the mother and behaviour upon reunion, and fear on encountering strangers, each involving a variety of indices, both positive and negative, of attachment. This procedure, known as the 'Strange Situation', is described below.
4.2 The 'Strange Situation'

The 'Strange Situation' (AINSWORTH & WITTIG, 1969) is a standardized laboratory procedure in which a fixed sequence of episodes is designed to activate and/or intensify infants' attachment behaviour, including reunion behaviours after separation. The format is as follows:

**Episode 1.** Mother carries Baby into the experimental room. The Experimenter then leaves. Duration is 30 seconds. Baby's response to the new room, from the Mother's arms, is noted.

**Episode 2.** Mother puts Baby down facing toys, goes to her chair, sits and reads. Mother has been instructed not to initiate an interaction although she may respond to the infant. Baby is expected to play with the toys and/or explore the room and is stimulated to do so, if necessary, after two minutes have elapsed. Duration is 3 minutes, and observations are made of the amount and nature of the Baby's exploration of the room and his orientation to the mother.

**Episode 3.** The Stranger enters and greets the Mother. After one minute of silence the Stranger has conversation with the Mother for one minute. In the third minute the Stranger approaches the Baby. After three minutes, the Mother leaves unobtrusively, leaving her bag on her chair. Observations are made of the Baby's response to the Stranger's presence and her overtures to the Baby.

**Episode 4.** This is the first separation episode; the Stranger sits quietly, as the Mother did in the first episode, not initiating any interaction, but responding to the Baby as appropriate. The episode
lasts for three minutes but is terminated prematurely if the Baby is
dutely distressed and cannot be comforted by the Stranger.
Observations are made of the Baby's response to the Mother's departure
and of any behaviours to the Stranger.

**Episode 5.** This is the first reunion episode, the Mother speaks loudly
outside the door, then enters. The Stranger leaves unobtrusively, the
Mother plays with the toys and after three minutes goes to the door,
says 'bye-bye' and leaves, closing the door behind her. Observations
are made of the Baby's response to the Mother's return and their
subsequent interaction.

**Episode 6.** The Baby is left alone for three minutes unless he becomes
dutely distressed. Observations are made of the Baby's reaction to
the Mother's departure and his exploratory behaviour, if any, in her
absence.

**Episode 7.** The Stranger returns, heralding her return by speaking
loudly outside the door. If the Baby is distressed, the Stranger
attempts to soothe him and then to engage him in play with the toys.
Duration is again three minutes and observations are made of the
Baby's response to the Stranger, whether he is soothed by her, interacts
with her, and how this compares with the first reunion episode with the
Mother.

**Episode 8.** In this second reunion episode, the Mother returns, greets
Baby and picks him up. The Stranger leaves unobtrusively.
Observations are made of the Baby's response to the Mother's return
and their subsequent interaction, and comparisons made with the first
reunion episode.
Throughout the series of episodes, the behaviour of Mother, Baby and Stranger is recorded by observers from behind a one-way vision window. Frequency and intensity of behaviours are assessed from the observation record. Measures taken in the 'Strange Situation' include exploratory locomotion, visual exploration, exploratory manipulation, crying, visual orientation, smiling, vocalization and oral behaviour. These are combined into the dimensions proximity and contact-seeking behaviour, contact-maintaining behaviour, avoidance and resistance, using 7-point scales ranging from 'Very active with persistent effort' to 'No effort'. Search behaviours and distance interaction are also measured, resulting in six behavioural variables.

On the basis of their behaviours in the 'Strange Situation', patterns of attachment and security of attachment are assessed. However, although the 'Strange Situation' comprises eight episodes, the index of attachment is calculated from the infant's behaviour in only four of the episodes, Episodes 2, 3, 5 and 8 for contact maintenance, proximity avoidance, and Episodes 4, 6 and 7 for search behaviour. Confidence in the security-insecurity dimension can be enhanced by a comparison of the infant's behaviours at home with those in the laboratory setting, to be discussed further below.

4.3 The Studies of AINSWORTH and her colleagues

AINSWORTH, BELL & STAYTON (1971) used the 'Strange Situation' in a longitudinal study of 26 white, middle-class mother-infant dyads in Baltimore, a sample which was subsequently increased to 106 when incorporated with samples from other studies (BELL, 1970; MAIN,
Results for the total sample are reported by AINSWORTH, BLEHAR, WATERS & WALL (1978).

The infants ranged in age from 48/6 to 57/6 weeks/days. Three main classificatory patterns of attachment emerge from the data, Group A, comprising 23 infants; Group B, comprising 70 infants; and Group C, comprising 13 infants. The major groups were further subdivided but only the major groupings will be described here.

The commonest pattern of attachment behaviour was observed in Group B. Such infants were typically more positive towards the mother, interacting harmoniously with her both in the laboratory and at home. Mother was used as a safe base from which to explore in the unfamiliar environment, and at home the infant played happily during the mother's temporary departure from the room. When left alone in the laboratory setting, the infant's expectations of his mother's availability are invalidated with the result that his attachment tends to be activated at high intensity and he tends to cry or attempts to follow his mother. Upon reunion, he seeks proximity and close bodily contact, which quickly soothe him. Babies demonstrating this pattern of attachment are designated as "securely-attached".

Infants in Group A showed more separation distress at home than babies in Group B, with more crying in general, although they showed little distress in the separation episodes in the laboratory. Upon reunion they tended to avoid their mothers and to show anger towards her. AINSWORTH et al (1978) describe these infants as "anxious-avoidant" since, although they are highly anxious, they
nevertheless avoid their mothers upon reunion. Mothers of anxious-avoidant infants were found to be rejecting of their infants and to themselves avoid close bodily contact.

Infants in Group C, the smallest group, were also distressed at separation, both at home and in the laboratory. They tended to have mothers who were poor at responding to their signals, and are therefore chronically anxious about their mothers' availability. Upon reunion, although highly anxious, they are ambivalent towards their mothers, the frustration from separation leading them to manifest contact-maintaining behaviour such as clinging together with angry resistance. Such babies are termed "anxious-ambivalent". Infants in both Groups A and C are classified by AINSWORTH et al as "anxiously-attached".

As part of their longitudinal study, AINSWORTH and her colleagues were able to observe mother-infant interaction throughout the first year for a sub-sample of 23 dyads. They were therefore able to compare infant behaviour observed at 12 months of age in the 'Strange Situation' with infant behaviour observed at 11 and 12 months at home, and to relate infant behaviours to behaviour of the mother observed during visits to the home throughout the year. AINSWORTH, BELL & STAYTON (1971) report that infant behaviour at home in the presence and absence of the mother differs little from infant behaviour in the laboratory at 12 months in the presence and absence of the mother. Further consideration will be given to the separation studies in the home in considering the validity of the 'Strange Situation' procedure (section 4.7).
With respect to the mother's behaviour, four rating scales were devised to assess acceptance-rejection, cooperation-interference, accessibility-ignoring, and degree of sensitivity to the baby's signals. Two further scales were developed to rate 'lack of emotional expression' and 'maternal rigidity'. The scales were found to intercorrelate highly, the most significant indicator of later security of attachment being sensitivity to the baby's signals, (AINSWORTH, BELL & STAYTON 1971; 1974). The more responsive a mother is to her infant's crying in his first three months, the less likely he is to cry later in the first year and the more likely he is to greet her cheerfully upon reunion after a brief separation (BELL & AINSWORTH, 1972; STAYTON & AINSWORTH, 1973). Measures of infant crying, in terms of duration and frequency, are therefore confounded with measures of maternal responsiveness to that crying. Anxious babies who are unsure of their mothers' responsiveness are likely to show more distress in the 'Strange Situation' and to respond to reunion with either anxious-avoidant or anxious-ambivalent behaviour. Thus mothers of Group A and Group C infants delayed significantly longer in responding to infant crying than mothers of Group B infants.

"Mothers of Group B infants were rated as more sensitive, accepting, co-operating and psychologically accessible to their babies than A or C mothers, who were significantly more insensitive, rejecting, interfering, and ignoring. It is the A mothers, however, who were especially rejecting, whereas the C mothers on the average received mid-scale ratings on acceptance and rejection."

(AINSWORTH et al, 1978, p.146)
AINSWORTH, BELL & STAYTON (1971) report that infants who have a secure relationship with their mother show a smooth balance and integration between attachment and exploratory behaviours. They conclude that even in the first year of life, there are important stable individual differences in the way in which attachment behaviour is organized around and directed towards the mother.

Apart from crying, physical contact is also important; mothers who give their infants plenty of physical contact have infants who respond at 12 months to being put down by turning "cheerfully to exploratory and play activity" (AINSWORTH, BELL & STAYTON, 1972). Thus mothers of Group B infants were more affectionate, more tender and careful in holding their babies than were mothers of Group A or C infants. Group C mothers were more likely to hold their babies only during the course of routine activities such as feeding; Group A mothers in particular seemed to find physical contact aversive. Such contact does not result in a "clingy and dependent one-year old; on the contrary, it facilitates the gradual growth of independence. It is infants who have had relatively brief episodes of being held who tend to protest at being put down ..... they seem highly ambivalent about physical contact - they may seek it, but they do not respond positively to it when they get it, and yet when put down they protest".

(AINSWORTH, BELL & STAYTON, 1974, p.121).

With respect to 'lack of emotional expression' and 'maternal rigidity', mothers of non-B babies tended to lack emotional expression when dealing with their babies and to be rigid and perfectionistic, particularly the Group A mothers (AINSWORTH et al, 1978). These indices of maternal behaviour are similar to those found by YARROW (1963) to
correlate highly with an infant's ability to cope with frustration and stress.

BOWLBY (1973) suggests that the overall patterns of personality development and mother-child interaction during the early months of life make it "plausible to believe that the one is the forerunner of the other" (p. 406). Mothering that is sensitive to the child's needs, responsive to his signals, and holds the mother readily accessible is compatible with the development of secure attachment and the beginnings of self-reliance.

4.4 Other Studies of Attachment using the 'Strange Situation'

The 'Strange Situation' has proved to be a point of departure for a large corpus of studies of attachment and attachment behaviour, both with one-year olds and with older children.

In order to compare studies with those of AINSWORTH and her colleagues, studies of one-year olds will be considered first, taking those studies that use a protocol with little or no modification from the original formulation. The review by AINSWORTH et al (1978) is incorporated and extended in the following sections.

(i) Patterns of Attachment at one-year related to antecedent variables

(a) Neonatal separation

HOCK, COADY & CORDERO (1973) compared full-term
infants (n = 30) prematurely-born infants (n = 31) who were hospitalized during the neonatal period for an average of 40 days. They found no differences in attachment behaviour between the two groups at 11 months, despite the difference in the early period of mother-infant interaction. There were however differences within the premature sample between twins and singletons, the former showing more resistant and avoidant behaviour than the latter.

(b) Demographic variables

CONNELL (1974, 1976) found that behaviour in the 'Strange Situation' at age one bore no relationship to such demographic variables as parental social class or number of siblings, although infants classified as belonging to Group C in his sample of 106 infants were found to have lower birthweights and Apgar scores.

(c) Maternal Attitudes and Mother-Infant Interaction

ROSENBERG (1976) found that mothers of infants classified as belonging to Group B in his sample of 46 infants scored significantly higher on the Reciprocity Factor scale of the Maternal Attitude Scale (COHLER, WEISS & GRUNEBAUM, 1970). This scale measures the degree to which mothers encourage reciprocity in interactions with their infants.
(d)  **Working versus Non-working Mothers**

BROOKHART & HOCK (1976) compared behaviour at 11 months in the 'Strange Situation' of home-reared infants (n = 18) with children who had attended a day-care centre (n = 15) for two months. This study, together with other studies by HOCK and her colleagues, will be considered in greater detail in a further chapter on maternal employment and its effects on infant socio-emotional development. The important finding for the purpose of this review is that there were no significant differences between infants of working and non-working mothers in the 'Strange Situation' at one year, although there were differences between infants in individual, as opposed to group, care.

(ii)  **Attachment and Cognitive Development at one year**

BELL (1970) assessed the development of person and object permanence and behaviour in the 'Strange Situation' at 11 months of age in a sample of white, middle-class infants (N = 33). Babies who were more advanced in person permanence than in object permanence were found to fall into classificatory Group B in the 'Strange Situation'; those whose object permanence was more developed than their person permanence were classified as belonging to Groups A or C, indicating anxious attachment. A later study confirmed these findings for a sample of 33 black infants from socio-economically deprived families.
CONNELL (1974) also found a relationship between cognitive development and attachment behaviour in the 'Strange Situation'. In his sample, only Group B infants were found to show the clear-cut habituation to a repeated stimulus, taken to be indicative of higher learning capacity.

Both studies outlined above were followed up. BELL (1978) found no significant differences in her sample of black infants between those classified as Group B and non-B at 24 months, using the Bayley Scales of Infant Development. Using the Stanford-Binet, there were significant differences at 30 months but not at 36 months.

CONNELL (1976) found no significant differences between his Groups A, B and C using the Stanford-Binet scale at 30 months. With a new sample of 55 infants, he examined language development at 18 months and found that both Group B mothers and Group B infants had more extensive vocabularies than Groups A or C.

MAIN (1973) assessed a sub-sample from the AINSWORTH et al sample on the Bayley Mental Scale at 20½ months. Infants who had been judged as securely attached at 12 months (Group B) were found to have significantly higher Development Quotients than infants in Groups A or C, previously judged as insecurely attached. They also spent longer periods in individual exploratory behaviour, showed more intense interest in objects, and had longer vocabularies.
(iii) **Attachment Behaviour at age one and subsequent Mother-child Interaction**

BELL (1978), observing mother-child interaction at 15, 18, 24, 30 and 36 months, found that throughout the second year of life, Group B mother-infant dyads maintained frequent interactions which were characterized by mutual warmth and affection, expressed both verbally and physically.

CONNELL (1976) similarly found that at 30 months, Group B dyads, as classified at 12 months, had more frequent and longer lasting interactions.

4.5 'Strange Situation' Studies of Two to Four-year olds

Although AINSWORTH and her colleagues have expressed reservations about the suitability of the 'Strange Situation' for use with older children, they nevertheless consider that

"There is no reason to believe that avoidance and resistance occurring in the case of older pre-schoolers has dynamics different from those that occur in the case of one-year olds."

(AINSWORTH et al, 1978, p.214)

A number of studies have shown that older children up to the age of four are likely to react to the 'Strange Situation' with intensified attachment behaviour, although the behaviour differs qualitatively from that shown by one-year olds. Whereas the latter sought reassurance in
physical contact, older children may be comforted by the presence of their mothers, taking upon themselves the onus of maintaining proximity. Upon separation, older children protest less, their greater cognitive and language development helping them to understand that mother will return soon. Nevertheless, they tend to search for her, many banging on the door and attempting to open it. Upon reunion, a substantial minority express anger towards the mother. Generally, there is a trend for protest to diminish with age, although the differences between ages one and two are slight. Children of three will recover sooner than children of two, but at age four some children, especially girls, will be very upset, possibly because of the strangeness of the mother's behaviour in leaving them, even when begged not to do so. Where sex differences are found, boys tend to explore more when the mother is present and make more attempts to reach her when she has gone. Girls tend to remain closer to their mothers and to respond more readily to the advances of strangers (MARVIN, 1972; MACCOBY & FELDMAN, 1972; COX & CAMPBELL, 1968; AINSWORTH et al, 1978).

4.6 The Stability of Attachment

In their procedural critique MASTERS & WELLMAN (1974) state that the stability of attachment behaviours across time and situations has not been demonstrated. AINSWORTH et al (1978) point out that by definition, use of the conventional test-retest method of assessing reliability renders the 'Strange Situation' no longer strange. Despite sensitization of infants to separation by test-retest at two-weekly intervals:
"Nevertheless, certain of the behaviours examined were reasonably stable from the first to the second session ....... In general, the correlations are remarkably high when viewed as test-retest coefficients for behavioural measures in a situational test."

(AINSWORTH et al, 1978, p.222)

(The coefficients referred to ranged from .04 to .74, with a mean correlation of .2). Classification of infants on the basis of attachment behaviours ranged from 0% to 86% with an average stability of classification of 57%.

Attachment behaviour is also reported to be moderately stable from 12 months to 18 months of age (CONNELL, 1976; WATERS, 1978) with up to 80% of infants classified in the same way on both occasions by CONNELL, 96% by WATERS.

Other studies have looked at stability in the frequency of discrete behaviours, rather than interactive behaviours and reunion. Such studies have failed to find stability from 2 to 2½ and from 2½ to 3 years of age (MACCOBY & FELDMAN, 1972), nor from 10½ to 14½ months and 14½ to 18½ months (COATES, ANDERSON & HARTUP, 1972 a & b).

THOMPSON, LAMB & ESTES (1982) looked at the stability of infant-mother attachment and its relationship to changing life circumstances. In a sample of 43 dyads tested at 12½ and 19½ months, they found only 53% were categorized in the same manner on both occasions. Upon examining maternal responses to questionnaires about changing life circumstances, they found that changes in attachment categorization
were associated with changes in caretaking arrangements, frequently in response to the mother resuming her employment.

Whereas MASTERS & WELLMAN (1974) concluded that

"there is little stability and functional equivalence among many attachment behaviours ...... the correlational analysis of human infant attachment behaviours does not provide substantial support for the concept of attachment as a psychological trait or central motive state." (p.228)

AINSWORTH et al (1978) conclude that

"there is substantial stability of individual differences in attachment across time and across situations. It is clear that the A-B-C classifications of strange-situation behaviour yield the most striking evidence of stability. This implies that it is the way in which an infant organized his behaviour in directing it toward his mother-figure that is stable" (p.294).

They continue that consistency across situations in the behaviours which mediate attachment cannot be expected unless the exigencies specific to the situation, interacting with the underlying organization of attachment, are taken into account. Therefore

"the specific behaviour toward an attachment figure in any given situation will be determined both by the underlying organization and by the situational context" (ibid).
The situational content in many studies has of course been the 'Strange Situation'. It therefore remains to evaluate the 'Strange Situation' as a valid procedure for the activation and assessment of attachment behaviours.

4.7 Validity of the 'Strange Situation'

AINSWORTH and her colleagues proceed on the assumption that the 'Strange Situation' will activate three behavioural systems, viz. exploratory behaviour in the presence of the mother, wary or fearful behaviour in the presence of the stranger, and attachment behaviour following separation.

SORCE & EMDE (1981) take up BOWLBY's point that

"a mother can be physically present but 'emotionally absent'."

(BOWLBY, 1973, p.23)

Although AINSWORTH et al (1978) acknowledge this important difference, there is no operational separation of these aspects in the 'Strange Situation'. That operational separation can be achieved is illustrated in the study conducted by SORCE & EMDE (op. cit.) in which it was found that the mother's availability had a significant effect upon the infant's affective, social and exploratory behaviours, the critical feature of the mother's availability being expressed, and correctly read by the infants, in brief emotional signals conveyed by facial expression.
The design of the 'Strange Situation' permits comparison of behaviours in the presence and absence of a stranger and implies, although it is not specifically tested, that the entrance of a stranger into an unfamiliar environment is more alarming than the strange environment per se. However, only 11% of their total sample reacted fearfully towards the stranger, 89% responding with friendly behaviour. Some studies have included a comparison of the 'Strange Situation' in the laboratory with a similar situation in the familiarity of the home environment. AINSWORTH and her colleagues conducted naturalistic observational studies in the home environment as part of their longitudinal study (AINSWORTH, BELL & STAYTON, 1972, STAYTON & AINSWORTH, 1973; STAYTON, AINSWORTH & MAIN, 1973), reporting more infant distress, as might be expected, in the laboratory setting. In another study using the 'Strange Situation' procedure both in the home and in the laboratory, no major differences were found (ROSS, KAGAN, ZELAZO & KOTELCHUCK, 1975).

LAMB (1976), in a critical review, states

"At best then these behaviours seem useful only for the analysis of infant social behaviour in the laboratory - a fact which confers on them a dubious validity " (p. 71).

Given that the laboratory is an artificial setting, and that the behaviour of the mother is, to say the least, unnatural, (AINSWORTH et al report that in Japan, mothers refused to leave their babies alone in an unfamiliar laboratory), the possibility of confounded effects of the setting, the stranger's approach, and the mother's departure must be considered. AINSWORTH et al believe that their procedure does
separate these effects, but in other areas of study that have investigated situational effects and the stability of those effects, whole ranges of situations have been evaluated. For example, ENDLER & MAGNUSSON (1976) argue that the observer can only make an assessment, on any behavioural dimension, based on specific situational observation. As a result of their studies, over 30 inventories of situation/response have been constructed to examine consistency of behaviour in the so-called 'Person-Situation' debate, across time and situations.

A second source of bias lies in the management contingencies of the 'Strange Situation'. As indicated earlier in the review of studies on 'Fear of Strangers', there is now considerable evidence that 'adult-controlled' situations give rise to different effects from those observed in 'infant-controlled' situations (RHEINGOLD & ECKERMAN, 1973; HORNER, 1980). The 'Strange Situation' does not allow for these differential effects.

The question of sample size in the AINSWORTH studies must also be considered. From a total sample comprising 106 mother-infant dyads, sub-groups were classified on observations of very few infants. The breakdown of the sample is as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Infants</th>
<th>Sub-group</th>
<th>Number of Infants</th>
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<tbody>
<tr>
<td>C</td>
<td>13</td>
<td>C1,</td>
<td>6</td>
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<tr>
<td></td>
<td></td>
<td>C2,</td>
<td>7</td>
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<tr>
<td>B</td>
<td>70</td>
<td>B1,</td>
<td>10</td>
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<td>B2,</td>
<td>11</td>
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<td>B3,</td>
<td>45</td>
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<td>B4,</td>
<td>4</td>
</tr>
<tr>
<td>A</td>
<td>23</td>
<td>A1,</td>
<td>12</td>
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<td></td>
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<td>A2,</td>
<td>10</td>
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<td></td>
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<td>A3,</td>
<td>1</td>
</tr>
</tbody>
</table>

Although there have been numerous replicative and extension studies, these have, in general, been based upon the original formulation and
cannot of themselves be taken to validate the procedure and the
inferences drawn therefrom. In addition, there is the problem of double
use of measurements; for example, AINSWORTH et al claim that
separation distress is an indicator of the formation of an attachment, but

"failure to show separation distress in the strange situation
may not be interpreted to mean that an infant has not
become attached to his mother" (p. 269).

It must be acknowledged that the 'Strange Situation' has been widely
used to investigate attachment and attachment behaviour and has
considerably extended BOWLBY's original theory of attachment. The
procedure has, nevertheless, been criticised on a number of grounds
which suggest that for the operational definition of attachment,
multiple criteria should be used and, where possible, a multi-method
approach devised to overcome the procedural biases described above. It
is selective responding to an attachment figure that is the hallmark of
attachment (COHEN, 1974), consequently such selectivity should be
shown to operate independently of context.

STEWART & BURGESS (1978) successfully translated the 'Strange
Situation' to a quasi-naturalistic setting using video-tapes of behaviour
in a waiting-room setting and observed children in both dyadic and
triadic conditions with an habituated unfamiliar adult for comparison.
Other studies have used loosely structured observations in the home in
which the mother says goodbye to her infant, leaves the room for 2-3
minutes and then returns. An observer, hidden or visible, records infant
behaviours during the period of separation and upon reunion
LITTENBERG, TULKIN & KAGAN, 1971; HOCK, 1976). Such studies are, however, statistically rare. STEWART & BURGESS (1978) call for ecologically valid research, questioning how much research which claims to be based on BOWLBY’s work is now so far removed from the primary tenets of ethological investigation as to now be deemed invalid. In short, they conclude, the 'Strange Situation', if executed in the laboratory, fails to pass the fundamental criterion of ecological validity.

5. An Interactional Approach to Attachment

ROSENTHAL (1973) argues that whereas the traditional way of discussing the relationship between attachment and mother-infant interaction is to view the former as a function of the latter, a more fruitful approach to the study of attachment is to view it as mother-infant interaction rather than as a function or outcome of interaction. In her formulation, attachment is a characteristic of interaction and there is a given conditional probability for a certain sequence of events. With this proposed change in orientation, indices of attachment become redundant, thereby circumventing the problem of definitions and adequacy of indices; instead, observations of two or more sets of interactions between mother and infant, obtained at two or more points in time describe attachment in terms of the underlying processes involved and secondly, the relationship between different patterns of interaction across time and situations, as well as with different persons.

"In other words, the orientation which equates attachment with person-child interaction rather than regarding it as something else which results from such an interaction, will look for consistent changes in the patterns of interaction at
time $t_n$ as a function of variations in patterns of interaction at time $t_k$" (p. 205).

A similar view is held by CAIRNS (1977) who argues that

"to move beyond attachment, it is necessary to develop concepts that are closer to the actual phenomena of social interchanges ...... children develop multiple interchange patterns ...... characterized by mutual reciprocity and escalation" (p. 18).

He suggests that research should be concerned with direct naturalistic and experimental analysis of interchange patterns and should take account of how interchanges are changed and tailored to new settings, relationships and demands.

Such techniques would, according to GEWIRTZ & BOYD (1977), reveal what is known of mother-infant interaction in real life situations, namely that the mothers' social responses come under the control of the infants' social behaviours,

"the dyadic functional relations labelled attachment are not limited to any developmental segment of life or to any particular interaction partners. Moreover, these dyadic functions may involve several figures concurrently, in any time span" (p. 112)

LYTTON (1978) adopts a similar approach in his study of parent-child interaction, arguing that 'Any relationship is, after all, a two-way
process in which, as in a tennis game, the actions of each partner are in part determined and modified by those of the other. Thus, with respect to attachment, 'it is viewed, first, as a process that takes its place in a living stream of behaviour, and, second, as an individual difference dimension, or child characteristic'.

What is at issue, according to RHEINGOLD (1969b) is the reciprocal socialization of the mother and infant; although initial responsibility for initiating an interaction may lie with the mother and is dependent upon her hormonal state, experience, attitudes and personality, the interaction is also influenced by characteristics of the infant, even during the neonatal period.

Using a similar approach, CROCKENBERG (1981) included infant characteristics such as temperament in her analysis of influences on the security of attachment and found that

"the 'easy' babies in this study were unlikely to develop insecure attachments even when potentially unfavourable social milieus existed" (p. 862).

Similarly, MILLIONES (1978) noted that a child's temperament moderates or influences the caregiver's behaviour towards the child.

As already noted above, SORCE & EMDE (1981) found that maternal characteristics such as emotional availability were related to attachment. AINSWORTH and her colleagues had earlier related differences in maternal sensitivity to security of attachment in the 'Strange Situation'; TOLAN & TOMASINI (1977) reversed this temporal
order of events and related infants behaviour in the 'Strange Situation' to differences in maternal sensitivity and expression of positive affect nine months later.

This brief review of recent trends in the study of attachment indicates a shift away from the constraints of earlier paradigms such as the stranger approach or 'Strange Situation'. Concomitantly, there has been a lateral shift in the breadth of variables taken into account in assessing attachment behaviours and strength of attachment, to include both maternal and infant characteristics, and the interactions between the two. According to LEWIS & ROSENBLUM (1973)

"For many years workers in child development have neglected the significance of the interaction between mother and infant, and in a sense the subtle contributions that each makes to the other in shaping their ongoing dyadic behaviour" (p. 9).

This shift in emphasis towards an interactional approach in more naturalistic settings is concordant with the clinical and ethological underpinnings of attachment theory and marks a significant step towards the 'ecological experiment' advocated in BRONFENBRENNER's (1977) model of the ecology of human development, to be discussed further below. From such a perspective, the continuum in attachment from mammals to man, traced in the earlier chapters, takes on a greater stamp of authority and provides the background for the present research by illustrating the complexity of attachment and its relationship to antecedent variables. Attachment and attachment behaviour, despite their complexity, are, however, only one aspect of socio-emotional
development. In the following chapter further aspects of socio-emotional development such as sociability and temperament will be reviewed.
CHAPTER 5  OTHER ASPECTS OF INFANT SOCIO-EMOTIONAL DEVELOPMENT: TEMPERAMENT AND SOCIABILITY

1. TEMPERAMENT
   1.1 The concept of temperament

2. Four theories of temperament
   2.1 Sheldon's Four Temperaments
   2.2 Buss & Plomin: Four temperaments
   2.3 Thomas, Chess & Birch: Nine temperaments
   2.4 Eysenck: Two temperaments
   2.5 How many temperaments?
   2.6 A multi-dimensional approach to sources of infant temperament

3. The relationships between infant temperament and other variables of the mother-infant system
   3.1 Temperament and cognitive development
   3.2 Temperament and mother-infant interaction

4. SOCIABILITY
   4.1 A definition of sociability
   4.2 Sociability and cognitive development
   4.3 Sociability, temperament and mother-infant interaction

5. Temperament, sociability and infant Socio-emotional development
1. The Concept of Temperament

In considering any aspect of child development, the contribution of the child in terms of innate potentialities cannot be underestimated. A major part of that contribution in the newborn infant is its temperament.

According to the Oxford English Dictionary, temperament refers to 'the individual character of one's physical constitution permanently affecting the manner of acting, feeling and thinking'. The relationship between physiology and personality has been of interest since antiquity; an early prototype was Hippocrates' classical theory later taken up by Galen, Kant and Wundt, that temperament is a consequence of the relative proportions of the body's four humors. Each humor was said to determine, with respect to the others, a personality type; thus a predominance of black bile was associated with the melancholic personality, yellow bile with the choleric, blood with the sanguine and phlegm with the phlegmatic personality.

A more recent exponent of the relationship between body type and personality was KRETSCHEMER (1925) who attempted a further equation with mental illness. Basically, he classified people into four
physical types: the frail, linear Asthenic; the vigorous, muscular Athletic; the plump Pyknic; and the inconsistent Dysplastic who could simultaneously have asthenic portions of the body together with pyknic and athletic. Kretschmer suggested that the kind of mental illness a person might develop depended on his physique, claiming, for example, that he had found a preponderance of pyknic types in a sample of manic-depressives.

In recent decades, child developmental theorists have been interested in the relationship between hereditary aspects of temperament and environmental forces. According to Thomas, Chess and Birch (1968), temperament refers to the way in which an individual behaves, it 'is the behavioural style of the individual child - the how rather than the what (abilities and content) or why (motivations) of behaviour. Temperament is a phenomenologic term used to describe the characteristic tempo, rhythmicity, adaptability, energy expenditure, mood, and focus of attention of a child independently of the content of any specific behaviour .... Temperament is not immutable. Like any other characteristic of the organism, its features can undergo a developmental course that will be significantly affected by environmental circumstances' (1968, p.4).

Whilst most researchers consider that temperament has a substantial genetic component (e.g. Buss & Ploomin, 1975, discussed below) the utility of the concept of temperament is not, according to Rutter (1982), diminished by demonstrations that a child's temperament is largely shaped by early life experiences -

'Temperament would still be viewed as a relatively
enduring individual characteristic that reflected the personal qualities that a child brought to any new experience he or she encountered' (RUTTER, 1982, p.3).

Buss and Plomin (1975), in their model of temperament (to be discussed below), go further: not only does environment alter temperament, but temperament can affect environment. In other words, the two interact; the environment that is being influenced is mainly social, that is, other persons. The effects of temperament on the social environment are threefold:

'the social environment may be shaped by temperament initially or through feedback. Temperament may determine which environments are selected. There are limits to the impact of the environment, and temperament-environment mismatches can lead to strain' (1975, p.5, emphases theirs).

The idea of mismatches leading to strain is reminiscent of the earlier views of KRETschmer, outlined above.

A major argument for the utility of the concept, according to Rutter, is shown by the power of temperamental measures as predictors of how children are likely to respond in various situations. As such, it 'constitutes a variable of considerable predictive power in developmental psychopathology' (RUTTER, 1982, p.14).

Secondly, it has been shown that the temperament of a child affects the way in which other people respond to him. DUNN (1980), for
example, found that the reactivity of a child in infancy elicited different responses from the mother which laid down patterns of maternal responsiveness to the infants a year later.

The utility of a concept such as temperament cannot be assessed independently of the validity and reliability of the instrument purporting to measure it. Considerable debate has centred on the difficulties inherent in measuring individual differences in infancy, in particular whether maternal reporting of infant behaviour is selectively biased, and to what extent it agrees with observations by a third party. BATES (1980), for example, argues that maternal report is no more than 'social perception' or 'parent perception', there being only modest levels of agreement (r's between .20 and .50) between parental report and independent observations of infants. Further consideration will be given to these matters after reviewing some of the theoretical and empirical studies conducted to date.

2. FOUR THEORIES OF TEMPERAMENT

2.1 SHELTON's Body types: The relationship between body type and personality has been advanced again in recent times by SHELTON (1954). From his observations of 4000 male college students, he postulated three major bodily types: endomorphy, characterized by extremely large and heavy digestive organs; ectomorphy, characterized by the prominence of the skin, hair, nails, receptor organs and nervous system, including the brain; mesomorphy, characterized by well-developed bones, muscles, tissues, heart and blood vessels. By rating his subjects on a seven-point scale, SHELTON claimed to have identified three personality types corresponding to the three bodily
types. Endomorphs were found to be viscerotonic, loving relaxation, comfort, taking pleasure in the digestive process and needing social approval. Mesomorphs were found to be somatotonic, being independent, assertive, liking risk and needing exercise. Ectomorphs were found to be cerebrotonic, lacking interest in comfort or exercise, being sensitive, solitary and sleeping poorly.

Whilst some evidence suggests that in everyday life, people do make attributions about personality traits purely on the basis of body type (e.g. BRODSKY, 1954; CORTES & GATTI, 1965; STAFFIERI, 1967), there is no evidence of a causal relationship between the two. The theory is no longer in favour, due to the paucity of supporting evidence, and possibly because of the current Western cultural penchant for changing body shape in accordance with the dictates of fashion.

With its emphasis on body shape, SHELDON was clearly referring to adult temperament and his theory was not designed for extrapolation to child development.

2.2 BUSS & PLOMIN: FOUR TEMPERAMENTS: In their temperament theory, BUSS & PLOMIN (1975) postulate four temperaments; activity, emotionality, sociability and impulsivity. Activity refers to the total energy output of a person, thus the active person is typically busy and in a hurry, likes to keep moving and has vigorous speech and actions.

Emotionality is equivalent to intensity of reaction, thus the emotional person is easily aroused and seemingly has an excess of affect. This
may be manifested in a strong temper, a tendency towards fearfulness, violent mood swings or a combination of some or all of these. BUSS & PLOMIN deliberately restrict themselves to a consideration of the negative emotions, arguing that positive emotions are not part of emotionality. 'We do not ordinarily use the word emotional to describe happy-go-lucky, blithe spirits ...... the term is reserved almost exclusively for those marked by the "darker" emotions' (p.57).

Sociability, according to BUSS & PLOMIN, consists mainly of affiliativeness or strong desire to be with others. Thus a sociable person finds rewards in social interaction, and is more responsive to others, than an unsociable person. In infancy, sociability includes the distinction between 'cuddlers' and 'non-cuddlers' made by SCHAFFER & EMERSON (1964). According to BUSS & PLOMIN, cuddling is the earliest manifestation of the temperament of sociability.

Impulsivity involves resisting rather than giving in to urges, and responding immediately rather than first contemplating an action.

According to their model, five criteria are used in deciding which personality dispositions are called temperaments.

'The crucial one is inheritance, which is central to the remaining four. An inherited component leads forward to developmental expectations of stability during childhood and retention into maturity. And it may be traced backward to adaptive value and presence in our animal forebears' (p.9).
Since the issue of inheritance is central to their model, BUSS & PLOMIN reviewed available twin studies of temperament and then conducted their own twin study, focussing directly on the four traits outlined above. They constructed a 20-item questionnaire (the EASI-1 Temperament Survey) to be completed by mothers of 139 pairs of same-sexed twins. Example items are

- Emotionality - 'child tends to cry easily'
- Activity - 'child cannot sit still long'
- Sociability - 'child prefers to play by himself rather than with others'
- Impulsivity - 'child gets bored easily'

Intra-class correlations were found to be higher for monozygotic twins than for dizygotic, as shown in Table (01)

<table>
<thead>
<tr>
<th></th>
<th>BOYS</th>
<th>GIRLS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Monozygotic</td>
<td>Dizygotic</td>
<td>Monozygotic</td>
</tr>
<tr>
<td>Emotionality</td>
<td>.68</td>
<td>.00</td>
<td>.60</td>
</tr>
<tr>
<td>Activity</td>
<td>.73</td>
<td>.18</td>
<td>.50</td>
</tr>
<tr>
<td>Sociability</td>
<td>.65</td>
<td>.20</td>
<td>.58</td>
</tr>
</tbody>
</table>

Source: BUSS & PLOMIN (1975)
Factorial unity was gradually improved from the a priori scale by revising and expanding the items in the EASI-II and EASI-III versions.

Most important of the environmental influences on personality development recognized by BUSS & PLOMIN is parent-child interaction. Parental input is considered to be child-rearing practice and, in common with other researchers, BUSS & PLOMIN suggest two major dimensions, namely nurturance, in which the parent cares for and protects the child, and initiates socialization; secondly, affection, in which the parent displays love (or hate) towards the child. The child's input, his temperament, can elicit new parental behaviours or changes in child-rearing practices. The third component in parent-child interaction is modelling. An important determinant of modelling is the degree of similarity between a child and his parents, since a child will already be disposed to behave like a parent where temperament is similar. Thus temperamental matches and mismatches between parents and children will profoundly affect personality development.

2.3 THOMAS, CHESS & BIRCH: NINE TEMPERAMENTS

Possibly the most influential approach to the study of temperament has been that of THOMAS and CHESS. In their New York Longitudinal Study (NYLS), THOMAS, CHESS & BIRCH (1970) followed 141 children of predominantly middle-class Jewish families from birth to the age of six years. Their study utilized the parent as observer over time and led to the development of parental questionnaires for the assessment of temperament. Subsequently shortened versions of
the THOMAS & CHESS questionnaire have been developed by CAREY and his associates (CAREY, 1970; 1972; CAREY & MCDEVITT, 1977) for Infants, Toddlers, 3-7 year olds and 8-12 year olds. These questionnaires have been shown to have generally satisfactory test-retest reliability (one month test-retest reliability = .86), and standardization has been effected both on American and now Swedish samples (McNEIL & PERSSON-BLENNOW, 1982).

In the NYLS, data were collected from parent interviews, direct observation, psychometric tests and, later, school observations and teacher interviews on the child's development and behavioural modes of functioning, problem-solving, play preferences, social interactions, responses to success and failure. In addition, data were collected on parental practices and attitudes.

Based on the parental interview protocols, nine categories of infant reactivity were established by an inductive content analysis, and a three-point scale established for each category. These categories and examples of ratings are summarized as follows:

<table>
<thead>
<tr>
<th>Temperamental Quality</th>
<th>Rating</th>
<th>Example at 2 months</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ACTIVITY</td>
<td>High</td>
<td>Moves often in sleep</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wriggles when nappy is changed</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>Does not move when being dressed or during sleep</td>
</tr>
<tr>
<td>2. QUALITY OF MOOD</td>
<td>Positive</td>
<td>Smacks lips when tasting new food</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Smiles at parents</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>Fusses after nursing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cries when pram is rocked</td>
</tr>
<tr>
<td>Temperamental Quality</td>
<td>Rating</td>
<td>Example at 2 months</td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>3. APPROACH/</td>
<td>Positive</td>
<td>Smiles and likes wash-cloth</td>
</tr>
<tr>
<td>WITHDRAWAL</td>
<td></td>
<td>Has always liked bottle</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>Rejects food first time</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cries when strangers appear</td>
</tr>
<tr>
<td>4. RHYTHMICITY</td>
<td>Regular</td>
<td>Regular 4-hour feeding since birth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Regular bowel movements</td>
</tr>
<tr>
<td></td>
<td>Irregular</td>
<td>Feeding varies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sleeps at different times</td>
</tr>
<tr>
<td>5. ADAPTABILITY</td>
<td>Adaptive</td>
<td>Was passive during first bath but now enjoys bathing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Still startled by sudden noise</td>
</tr>
<tr>
<td></td>
<td>Not adaptive</td>
<td>Still resists bathing</td>
</tr>
<tr>
<td>6. THRESHOLD OF</td>
<td>Low</td>
<td>Stops sucking on bottle when approached</td>
</tr>
<tr>
<td>RESPONSIVENESS</td>
<td></td>
<td>Takes breast and bottle equally well</td>
</tr>
<tr>
<td>7. INTENSITY OF</td>
<td>Intense</td>
<td>Cries when wet. Rejects food vigorously when satisfied</td>
</tr>
<tr>
<td>REACTION</td>
<td></td>
<td>Does not cry when wet. Whimpers instead of crying when</td>
</tr>
<tr>
<td></td>
<td>Mild</td>
<td>hungry</td>
</tr>
<tr>
<td>8. DISTRACTIBILITY</td>
<td>Distractible</td>
<td>Will stop crying for food if rocked</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Will not stop crying when wet nappy is changed</td>
</tr>
</tbody>
</table>
From these nine dimensions of individual differences, THOMAS CHESS & BIRCH distinguished three basic 'types' of child: the 'easy' child, the 'difficult' child and the 'slow-to-warm-up' child, the characteristics of each being described as follows:

The 'difficult' child: The 'difficult' child or so-called 'mother-killer' was identifiable before the age of two years, and before any behavioural disturbances were detected either by the mother herself or by the research team. Approximately 10% of the NYLS sample were categorized as 'difficult' and many later developed psychiatric problems. The attributes of the 'difficult' child include irregularity in biological functions such as sleeping and eating; a predominance of negative (withdrawal) responses to new stimuli, such as crying or protest at encountering a new food or new visitor; slowness in adapting to changes in environment; requiring repeated exposures before adaptation occurs; a predominance of negative mood, such that crying and fussing occurs more frequently than laughing and expressing pleasure; a predominance of intense reactions, including shouting, banging, running about in pleasure, violent tantrums in displeasure.

The researchers were unable to identify any differences in approach to child care or attitudes in the parents of such difficult children,
although different coping strategies and explanations for the behaviour of the child were adopted, with varying degrees of success.

**The 'easy' child:** Approximately 40% of the NYLS sample were classified as 'easy'. The 'easy' child is described as usually being in a good mood, having regular sleep and bowel movements, and adapting readily to new situations. The biological rhythmicity of such children means that they will settle spontaneously into feeding and sleep routines, bowel training will be accomplished with ease, and adaptability ensures that new stimuli are readily assimilated, including food, strangers and situations. The 'easy' child has predominantly positive moods and will rarely cry unless hungry, sleepy or ill. Behaviour problems can occur in such children, usually where extrafamilial mores, standards and behaviour patterns are in marked contrast to those within the home.

**The 'slow-to-warm-up' child:** The child who is 'slow-to-warm-up' is typically relatively inactive, withdraws from novelty, is negative in mood and reacts with low intensity. Such children do adapt to new situations if they are allowed to adapt at their own tempo, gradually overcoming their initially negative response. If they are precipitated into novel situations by parents or teachers, they react by withdrawing, clinging or silent non-participation.

THOMAS & CHESS have recently reported on a follow-up of the NYLS at the 18-22 year period. They were able to contact 133 subjects at this age and report significant relationships between 'difficult-easy' temperament at three and five years of age and early adult 'difficult-easy' temperament, adjustment and presence or absence of a clinical psychiatric diagnosis (THOMAS & CHESS, 1982).
The authors point out that the correlation analyses indicate that the predictive power of the childhood variables for the adult variables accounts for 34% of the variance, a very high proportion given the time-span involved.

In another recent study, the patterns among the nine temperament variables from the NYLS were studied by means of factor analyses of data from a demographically representative sample of 160 Swedish children at 6 months, one and two years of age (PERSSON-BLENNNOW & McNEIL, 1982). Maxplans solutions yielded the most consistent solutions, but were rejected for the 6-month age group since the factors were unsatisfactorily unstable. At age one, three factors were obtained: Factor I included Mood, Approach, Adaptability and Distractability; Factor II included Activity, Approach and Intensity; Factor III consisted of Rhythm and Threshold. At age two, Factor I was identical to Factor I at age one, Factor II was a specific factor for the variable Attention-Persistence, and Factor III consisted of Activity, Approach and Intensity; Factor III consisted of Rhythm and Threshold.

Whilst not identical, the two consistent factors extracted at ages one and two were similar to the NYLS 'difficult' and 'slow-to-warm-up' patterns; accordingly the researchers suggest that they should be considered as possible alternatives to the NYLS patterns in clinical and/or predictive contexts.

2.4 EYSENCK: TWO TEMPERAMENTS: The fourth 'type' theory to be considered is that of Hans EYSENCK. In the late 1940's, EYSENCK
hypothesized that large numbers of personality traits could be encompassed by two underlying factors or dimensions. These dimensions are Introversion-Extraversion, closely resembling the Jungian concept of the same name, and Neuroticism, otherwise known as Emotionality or Stability-Instability. The quadrants produced by the four polarities fit very neatly into the GALEN-KANT-WUNDT schema of the four temperaments, described in Section 1 above. Factor-analytic studies of the inter-relationships of various traits, in many different populations, indicate that a large proportion of the total common variance produced by the observed correlations can be accounted for in terms of these two factors. EYSENCK has since hypothesized the existence of an orthogonal third major dimension, namely psychoticism. It is EYSENCK's contention that heredity plays an important part in the development of these personality dimensions, contributing more to individual differences than environmental influences (EYSENCK, 1967, 1970c, 1973a). Descriptions of the 'typical' introvert and extravert are given in Chapter 10 and need not be repeated here.

Whilst EYSENCK does not describe the developmental course of either extraversion or neuroticism, he has standardized a junior questionnaire for the children of age seven and above.

2.5 HOW MANY TEMPERAMENTS? Given that extraversion is comprised primarily of the major components of sociability, activity and impulsivity, and neuroticism is comprised of emotionality, the theories of EYSENCK and BUSS & PLOMIN can be seen to encapsulate the same fundamental variables, and to be largely predicated on the same principles of heritability. The nine dimensions described by THOMAS,
CHESS & BIRCH have been those most assiduously studied in infants and it may well be that the three basic 'types' they describe could equally well be described in terms acceptable to the other theorists e.g. the 'difficult' child could be described in terms of emotionality and instability that would fit into the unstable extravert quadrant of EYSENCK's configuration. In adulthood, the sociable, easygoing, stable extravert could well become SHELDON's typical endomorph, and the quiet, solitary, stable introvert the typical ectomorph.

In short, the four theories outlined above have much in common, each, in its own way, providing a useful descriptive account of 'types' of temperament based on observable individual differences, with a strong heritable component. They may be uniquely different or they may be describing the same fundamentals of personality in different combinations and terminology.

For the purpose of studying individual differences in infants, the descriptive 'types' approach based on biological determinants is, despite its obvious limitations, clearly more helpful than, for example, social learning theory which emphasises the interactions between an individual and his environment, or psychoanalytic accounts looking for the unconscious motives directing behaviour.

2.6 A MULTI-DIMENSIONAL APPROACH TO SOURCES OF INFANT TEMPERAMENT

Thus far, temperament has been discussed as an organismic input beginning with the birth of the infant. However, the antecedents of such behavioural variation are of considerable research interest as
investigators search for correlation of infant behaviours in what KRETSCHER (1974) terms the 'ecology of the fetus'.

Conceptually, the possible sources of variability can be categorized into three groups; firstly, demographic characteristics of the parents, including age, education, and economic status; secondly, pre-natal events of biological and psychological significance such as stress and anxiety in the mother; thirdly, childbirth circumstances such as length of labour and obstetric medication. Using this framework, STANDLEY and her colleagues found that older, more highly educated and financially secure couples were more likely to have a satisfying pregnancy, to approach the childbirth process and the arrival of the child with anticipation and assurance, and to have less analgesics and anaesthesia than their younger more anxious counterparts (STANDLEY, SOULE, COPANS & KLEIN, 1978). Mothers who did not have obstetric medication were likely to have less irritable and more motorically developed infants (cf Chapter 5, Obstetric management).

Other studies have also demonstrated a link between maternal anxiety and difficult temperament, using the CAREY Infant Temperament Questionnaire (e.g. VAUGHN, DEINARD & EGELAND, 1980). However, having established that the infant does have an input in terms of its temperament, a recent study goes further to examine the joint effects of individual differences in mothers and infants (SAMEROFF, SEIFER & ELIAS, 1982). Using a hierarchical multiple regression technique, SAMEROFF et al found that the maternal variables associated with infant temperament as assessed by the CAREY ITQ were social status, anxiety level and mental health status, and that these variables explained more ITQ variance than
child variables. The reverse did not obtain; child measures did not predict ITQ scores when maternal variables were partialled out. The researchers suggest that maternal ratings of infant temperament should not be considered worthless, as some have suggested (cf Section 1 above), for in the long run such ratings may have an even greater impact on the child's development than the child's actual temperament. In other words, the mother's opinion of her child's temperament may have more effect on the child than its temperament would account for, possibly through some mechanism akin to a self-fulfilling prophecy - the child who is perceived by his mother as difficult will eventually be affected by her opinion of him. These results clearly support the notion that individual differences in mothers, rather than differences in infants, may be responsible for early ratings of temperament.

3. THE RELATIONSHIP BETWEEN INFANT TEMPERAMENT AND OTHER VARIABLES OF THE MOTHER-INFANT SYSTEM

3.1 Temperament and Cognitive Development: WACHS & GANDOUR (1983) found significant correlations between temperament, as measured by the CAREY ITQ, and cognitive-intellectual development, measured by the Infant Psychological Development Scale (UZGIRIS & HUNT, 1975). This result, based on a sample of 100 normal infants, confirms earlier reports of a significant relationship between temperament and early cognitive development (e.g. SOSTEK & ANDERS, 1977), which were not generalizable due to small sample sizes and high risk populations. Temperamentally 'easy' infants were found to have greater sensitivity to the social and physical environment than 'difficult' children, reacting positively to social
Interactions whereas 'difficult' children reacted negatively, seemingly finding them aversive. Differential reactivity by different individuals to similar early environmental stimulation has been termed the 'organismic specificity hypothesis' by WACHS & GANDOUR who claim that the significance of the hypothesis for developmental theorists is that different environments favour different temperamental types. For example, the 'easy' infant may thrive in an environment characterized by social encounters whereas the 'difficult' child may find such an environment aversive.

3.2 Temperament and Mother-Infant Interaction: Recent approaches to infant socio-emotional development have moved towards a greater consideration of the effect of the infant upon its caregiver. As indicated in Section 2.3, THOMAS & CHESS consider that the temperamentally 'difficult' child is more likely to contribute adversely to mother-infant interactions, while the temperamentally 'easy' child is likely to elicit more favourable responsiveness from the mother. In general, one is likely to see a decrement in positive maternal behaviours if the infant or child behaviours do not facilitate reciprocity in the relationship (CLARKE-STEWARD, 1973; LEWIS & LEE-PAINTER, 1974). Empirically, MILLIONES (1978) found a correlation of -0.54 between scores on the Maternal Variables Inventory, designed to assess maternal behaviours that facilitate positive attachment to the mother, and the revised CAREY ITQ. Almost 30% of the variance in maternal responsiveness was accounted for by infant temperament, the more difficult the child, the less the maternal responsiveness. The 'knock-on' effect of low levels of maternal responsiveness were considered in Chapter 4, in the development of reciprocal attachment between mother and infant.
Individual differences in the signal aspects of the infant's repertoire (crying, smiling, babbling and vocalization), and the executive aspects of behaviour (clinging, approach and following) will affect the creation and maintenance of proximity that are essential both for caregiving and for social interaction. As LEWIS & ROSENBLUM (1974) point out, smiling and vocalization are not only signals for promoting and maintaining attachment but are also responses that maintain mothers in the social interaction. Consequently infants with low levels of smiling and vocalization will be less likely to 'maintain' their mothers in the social interaction so necessary for both socio-emotional and intellectual development.

4. **SOCIABILITY**

4.1 **A definition of Sociability**: 'Sociability' is defined by LAMB (1982) as:

> 'the friendliness and social attractiveness of the infant. It describes the extent to which others find interaction with an infant enjoyable and enticing' (p.215)

As indicated in Section 2.5 above, some theorists include sociability as a dimension of temperament, however, others view it as another and different manifestation of genetically-based individual differences.

4.2 **Sociability and Cognitive Development**: Sociability, like temperament, is correlated with measures of infant cognitive competence (BAYLEY, 1969; LAMB, 1982). Reported coefficients range up to .6, with sociable, friendly infants consistently performing significantly better than less sociable infants.
The relationship between sociability and cognitive development is built on several related factors. Firstly, the relationship reflects a maturational association, with greater sociability being a sign of greater maturity. Notwithstanding the well-documented increase in fear of strangers during the first year of life (see Chapter 4), longitudinally, sociability has been shown to increase with age from one to 2½ years in both structured and unstructured situations (CLARKE-STEWART, UMEH, SNOW & PEDERSON, 1980). However, LAMB (1982) hypothesizes that sociability is correlated only with infant performance rather than with infant competence per se. Alternatively, it might be the case that sociable, friendly babies invite more social stimulation from adults which does serve to accelerate the infant's cognitive development. LAMB concludes that from the evidence so far available, it is not possible to distinguish between these hypotheses at the present time.

4.3 Sociability, temperament and mother-infant interaction: Part of the difficulty in distinguishing between alternative hypotheses such as those outlined above lies, as was pointed out in the discussion on temperament, in partialling out the genetic from the environmental influences on the infant. Sociability of the infant, LAMB reports, is inextricably associated with the quality of the infant's social experiences within the family, which in turn form the basis for security of attachment. From his and other researches reviewed in this and the preceding chapter, it would appear that an infant genetically predisposed to be temperamentally 'easy' will elicit more social stimulation than the infant predisposed to be temperamentally 'difficult'; additional social stimulation will ensure mutually satisfying mother-infant interaction, the effects of which can be seen in greater
security of attachment and enhanced cognitive performance in infancy.

5. Temperament, Sociability and Infant Socio-Emotional Development

In the complex, multi-faceted concept of socio-emotional development, elucidation of an 'end state' is problematic; for ERIKSON's psycho-social development, the end state is maturity; for PIAGET's cognitive development, it is the attainment of Formal Operations. In socio-emotional development, one is operating at the interface of cognitive, social and emotional development, where the relative weights of heredity and environment, both pre- and post-natal, do not lend themselves to separation. Most developmental theories posit stages, usually implying a qualitative rather than quantitative pattern of behaviour characteristic of certain ages. Stage theories, such as PIAGET's, usually adhere to prototypical developmental laws specifying some fixed and invariant sequence of events, with the logical necessity that one stage shall be achieved before the next.

Consistency and stability are the keynotes of stage theories; however, ULVUND (1982) has recently made the point that development is frequently characterized by discontinuity, which he reinterprets in terms of stability from one stage to another, that is, in terms of competence rather than performance.

It would seem more useful to an understanding of socio-emotional development to conceptualize the process in terms of discontinuity rather than emphasizing consistency and stability, and to adopt a
transactional model such as that suggested by SAMEROFF (1975) in which the infant actively participates in continuous organismic/environmental interaction over time.

In other words, having 'unpacked' infant socio-emotional development into the organismic and environmental contributions of temperament, sociability and mother-infant interaction, having charted and discussed various 'stages' or developmental 'milestones' such as social smiling, fear of strangers and attachment, it is essential for an understanding of infant socio-emotional development in the first two years of life to consider the Gestalt rather than its component parts. The constraints imposed upon an empirical design to study socio-emotional development as a Gestalt are formidable, calling for multi-method approaches, within an ecologically-valid framework, in which the most psychologically significant effects will be in terms of interactions of a higher order than the usual linear dependent variables produce.

However, before discussing any experimental design, attention must first be turned to maternal employment and day care; in the next chapter, therefore, the literature is reviewed on maternal employment, attitudes to childrearing and maternal employment and types of day care available. In Chapter 7, the effects of maternal employment on both infants and mothers is reviewed, before the scene can finally be set for the present study.
PART III MATERNAL EMPLOYMENT AND DAY CARE

Chapter 6 Maternal Employment and Day Care

Chapter 7 The Effect of Maternal Employment and Day Care
CHAPTER 6 MATERNAL EMPLOYMENT AND DAY CARE

1. Maternal Employment in Perspective
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1. Maternal Employment in Perspective

Since the end of World War II increasing numbers of women in the Western world have chosen to return to the labour force after marriage and childbirth (I.L.O., 1958, 1967). According to census data both in the United Kingdom and in the United States, more and more women are working while their children are of school age or below. In the U.K. in 1976, two-fifths of all children under 11 and one-quarter of all children under the age of 4 had a mother in employment (H.M.S.O., 1978). In the United States in 1972 one-half of all children of school age and one-third of children below school age had a mother in employment. (U.S. Bureau of the Census, 1972). By 1980, 42% of pre-schoolers had mothers who worked, rising to 48% in 1982 (CLARKE-STEWARD, 1982).

Of these women, just over 80% were working part-time in the U.K. in 1976 (EQUAL OPPORTUNITIES COMMISSION, 1979), and approximately 60% in the United States (HOFFMAN & NYE, 1974). Figures for part-time employment must be treated with caution since some part-time workers are employed full-time for a few days per week all year round, some are employed full-time every day of the week for only part of the year, and some are employed for a few hours each day all year round.
Looking beyond the statistics, the sociological trends revealed by the figures are of increasing interest because of their potential psychological impact upon family life. Some women have always worked; traditionally, lower-class women have been employed in agriculture or domestic service for centuries, and in industry in the last two centuries, with little or no account being taken of whether or not they had young children. No-one enquired of them their reasons for working since it was obviously to supplement the family income. Similarly, no-one enquired as to the caretaking arrangements for the children since with larger and extended families there was always a grandmother, auntie or older sibling available in the home (Yudkin & Holme, 1963).

The origins of current trends are to be found with the middle-class women of the nineteenth century who sought equality of opportunity in education and pioneered 'white-collar' employment for educated women (Yudkin & Holme, 1963). In this century, the necessity for women to fill the positions of men in war-time broke through many barriers as to what constituted 'women's work'. At the same time, it became necessary for governments at both national and local level to give consideration to the provision of care for the children of women workers (see Section 3, below). Furthermore, family size was contracting as nuclear families came to replace extended families as the norm, and families chose to limit the number of children, despite occasional fluctuations, to slightly above replacement level, as a result of increased knowledge and availability of methods of contraception (Hoffman & NYE, 1974).
Women now complete their childbearing at a younger age than previous generations, most women now seeing their youngest child into school by the time they are thirty-two years old. Consequently, with increased life expectancy, there follows a period of thirty or more years when a woman is potentially available to the labour force, compared with pre-war estimates of child-bearing until the age of 55 years. According to HOFFMAN & NYE (1974), women who choose NOT to return to work for the latter 50% of their life will become the subject of future studies, whereas present and recent concerns have been focussed on working mothers.

CLARKE-STEWARD (1982) considers that the Women's Movement of the 1960s and 1970s contributed to the increase in numbers of working mothers, both practically, by fighting for equal opportunities for women, and theoretically, by replacing "the traditional feminine mystique that 'motherhood is fulfilment' with a radical feminist mystique that highlighted one question for women: 'Am I fulfilling my potential for achievement in the real world?'" (p.19). This question most frequently arises when the youngest child enters school since, for many mothers, this marks the end of a major role in their life (BIRNBAUM, 1971).

Nevertheless for many women the traditional pattern of giving up a career in order to look after the children has been difficult, if not impossible to change, resulting in role conflict, anxiety and guilt for those attempting to combine the two roles. According to OAKLEY (1980) it is still widely held that "a 'good' mother stays at home for the first three, preferably five and ideally eleven or twelve, years of her child's life: she provides her child with a comfortable physical
and emotional environment for growth. To do this, she has to be
tied, in some measure, to the home" (p. 129), since "the cultural
dogma is that motherhood and employment are mutually exclusive."
(p. 196).

2. The Working Mother

Early studies of working mothers tended to employ a unilinear model
in examining the effects of the mother's employment on the child.
More recently, mothers themselves have become the subject of study,
firstly, to see if they differ on any psychological or socio-
demographic variables from non-working mothers; secondly, to
examine factors in the decision-making process preceding the mother's
employment; thirdly, to assess the ramifications of that decision in
the physiological and psychological effects of working upon the
mother herself, as well as upon her family.

In this section differences between working and non-working mothers
in various psychological variables will be considered, together with
the reasons given by mothers for working and factors affecting that
decision. Effects of maternal employment upon the children and upon
the mother herself will be considered in the next chapter.

2.1 Career Orientation

The term 'career orientation' has been chosen as a generic term for,
inter alia, 'attachment to work', 'importance of employment', 'career
aspirations', 'achievement motivation'. Career orientation does not
appear to reflect sexual equality in educational opportunity, for
example, RAPOPORT & RAPOPORT (1969) found that only 5% of
female graduates aspired to 'get to the top' of their profession, compared with 25% of male graduates. Eight years after graduation, only 4% of married women with children worked for 30 hours per week compared with nearly 90% of single women graduates. It seems, therefore, that even highly qualified women conform to social norms and relinquish their careers, albeit temporarily, even if this results in personal frustration for the 'captive wife' (GAVRON, 1966).

OAKLEY (1980) suggests that giving up employment for motherhood may be construed either as a loss or a gain, and that women who construe it as a loss may have less positive experiences of motherhood. She relates employment loss to low self-esteem in new mothers and to post-partum depression. PISTRANG (1982) computed the psychological impact of loss of work by subtracting a score for motherhood satisfaction from a score for work satisfaction. Loss was significantly related to maternal irritability, costs of motherhood, depression, and negatively related to feelings of importance and self-esteem. However, this measure only tapped satisfactions that could be obtained from both work and motherhood but did not measure any rewards of motherhood that might have compensated for loss of work.

Some families claim to be committed to the notion of 'dual careers', but in practice, RAPOPORT & RAPOPORT (1969) found, it is much harder for a married woman to have a full-time career, since, despite some division of labour in relation to domestic chores and child-rearing, the level of social and emotional support normally available to a working husband are not similarly available to a working mother. CLARKE-STEWART (1982) states:
"full-time working mothers, on average, spend forty hours a week on their job and another thirty-six hours on their home and children ....... The primary responsibility and time commitment in most families is still the wife's" (p.10).

In her investigation of career orientation HOCK (1978) identified a population of maternity ward patients whose reported plans to work in the first year of their infants' lives indicated that about half would return to work. Mothers were interviewed in the hospital two or three days after delivery and again in their homes when their infants were aged 3 - 4 months. She reports that career orientation, as assessed by standard interview questions, was stable across this period of time, and that working mothers were significantly more career-oriented than non-working mothers. Career orientation was related to a number of variables reflecting the mother's perception of her infant's needs. Thus "the more highly career-oriented the mother was, the less she took infant discontent as a personal affront, the less she perceived infant distress at separation as caused by her leaving, the less anxiety she felt about separation, and the less anxious she was about other care-givers. When the non-working mothers were considered, the direction of the relationship changed. The more highly career-oriented a non-working mother was, the more she took infant discontent as a personal affront, and the more she perceived infant distress at separation caused by her leaving." (pp 40-41).
2.2 Attitudes to Childrearing and Maternal Employment

Another domain that has been studied for possible differences between working and non-working mothers is their attitudes to childrearing. HOCK (1980), using the Maternal Attitude Scale (COHLER, WEISS & GRUNEBAUM, 1966), found that the two groups in her study differed significantly in their belief in exclusive maternal care, were anxious about separation and expressed little interest in a career for themselves. HOCK suggests that possibly such mothers behave in ways that promote their infants' dependency. She argues that for these women, the congruence between their attitudes and employment status significantly contributes to the mother's potential for gaining satisfaction from motherhood. For working mothers, a strong belief in exclusive maternal care may result in a role conflict that negatively affects the mother-infant relationship. Thus, for HOCK, it is not the attitude itself which is the most significant factor, but rather the congruence between the attitude and the mother's employment status. This view is supported by STUCKEY, McGHEE & BELL (1982), who found that there was increased negative affect in families experiencing incongruence between parents' attitudes and the mother's employment status.

'Congruence' between employment status and attitude to child-rearing is obviously related to maternal role satisfaction. Positive or negative attitude to employment status has been shown to predict certain aspects of child-rearing behaviour. HOFFMAN (1963) found that the mother who enjoyed her work showed her child more affection, used milder discipline and generally had more positive
interactions with her child than less satisfied mothers, regardless of the latter's employment status. Similarly, (YARROW, SCOTT, DeLEEUW & HEINIG (1962) found that employment status was not significantly related to child-rearing attitudes, but that dissatisfaction with the present role did make a difference, particularly for non-employed mothers. Dissatisfied, non-working mothers expressed less emotional satisfaction and scored lower on scales reflecting adequacy of mothering (YARROW et al, 1962).

In a similar vein, PISTRANG (1982) found that women scoring high on work involvement experienced conflict if they decided to stay at home, believing that their infants' needs required them to stay at home, whereas their own interests lay in working. As expected, women with low scores on work involvement were more content to stay at home and reported more intrinsic satisfaction from motherhood, having previously worked primarily for financial reasons or for social contact.

Similarly OAKLEY (1980) states that "the possession of a strong 'work identity' is not conducive to joyful anticipation of domesticity; not enjoying work and/or seeing oneself as a mother, is." (p.198)

Other studies have demonstrated differences between working and non-working mothers in their attitudes towards dual roles, with employed women holding more favourable attitudes (Houser & Beckman, 1980). Stuckey et al (1982), using the Scale of Attitudes towards a Dual Role for Women (DALRYMPLE, LOWE & NELSON, 1971), found significant differences between the two employment groups on three of the four sub-scales relating to belief
in the effects of maternal employment on children, financial contributions of women, and maintenance of home and family relationships. Interestingly, they found that husbands and wives in each group held similar attitudes. Both mothers and fathers in the non-employed group believed strongly that their children needed exclusive mothering and that maternal employment could have harmful effects on children.

In an earlier study of maternal attitudes, HOCK (1976), again using the Maternal Attitude Scale (COHLER et al, 1971), found that mothers who believed in channelling their children's aggressive impulses rather than restricting them (Factor I, MAS), who believed that infants could communicate (Factor II, MAS), who felt they could enjoy their babies without undue self-sacrifice (Factor III, MAS), who were able to acknowledge the emotional complexity of child care (Factor IV, MAS), were more likely to be rated as nurturant, sensitive and stimulating mothers. Competence (Factor V, MAS) was not related to this style of mothering but was found in mothers who expressed a high investment in the maternal role but were more likely to inhibit aggressive impulses rather than channelling them, and less likely to acknowledge their feelings of doubt, inadequacy and ambivalence regarding child care. This dichotomy was reflected socio-demographically; women in the former group were older, better-educated and of higher socio-economic status than women in the latter group.

BIRNBAUM (1971) found that among college-educated women, two factors differentiated between working and non-working women; firstly, attitudes towards the woman's role were less traditional
among working women and secondly, their sense of competence was higher than in non-working women. However, for both these factors, the cause-effect relationship is unclear. This difficulty besets many studies aiming to differentiate between working and non-working mothers and leads HOFFMAN (1974) to conclude that it is premature to say whether any personal trait can differentiate, even within specific occupational groups such as women doctors or lawyers. There is, moreover, no empirical support for the stereotypic notion that working mothers have greater needs for power and dominance (HOFFMAN, 1974).

Studies such as those cited in this section have generally taken two samples of women, one working and one non-working, and questioned them as to their reasons for working. This approach may however conceal differences between the two populations existing prior to employment. An alternative approach, used by Ellen HOCK and her colleagues, is to study a seemingly homogeneous group of women, for example, women in maternity hospitals, and to attempt to chart the factors influencing the decision to return to work or not.

2.3 Reasons for Working

All studies find that financial reasons are the most frequently cited reasons for working. Nevertheless, substantial minorities are motivated to return to work from professional or vocational interest: YUDKIN & HOLME (1963), in their British study, found that 29% of women claimed to work from vocational interest, and less than one-fifth said they would stop working even if there were no financial need to work. Other commonly cited reasons for working are social,
for example, to get out of the house and meet other adults, or psychological, for example, boredom, frustration or the need to have a break from the children (CLARKE-STEWARD, 1982).

HOFFMAN & NYE (1974) consider that 'working for money' is a cliche obscuring many different motivations to work. Whilst some women clearly do need to work to provide basic necessities, others may be working to provide 'extras', or to generally facilitate upward mobility towards reference group families with higher incomes. DUNNELL (1979) reports that of reasons cited by women for working between their first and second live births, 47% needed the money, 27% wanted extra things, 22% said they liked to work, and 4% gave other reasons. Most common of the non-financial reasons for working is to escape the dullness of daily household routines, frustration with the continued necessity to give children's needs priority, and boredom with the same physical environment (HOFFMAN, 1974).

As indicated by HOCK (1978), career orientation may also be a reason for working. In a follow-up study, she looked at factors associated with the decision to return to work and found that mothers who changed their maternity ward plans in favour of working were more career-oriented, although their attraction to employment was countered initially by a strong belief that they should stay at home with their babies. Such mothers did not appear to derive the anticipated satisfaction from staying at home, blaming themselves for infant discontent, and describing their babies as less dependent on the uniqueness of the mother's interactions with them than mothers who did not revise their employment intentions (HOCK, CHRISTMAN & HOCK, 1980).
2.4 Two Populations?

From the studies reviewed above, it would clearly be facile to assume that working and non-working mothers are homogeneous and distinct populations. Within both populations some mothers have a high level of career orientation and some a low level. Those with a high level of career orientation, and who are in employment, in other words whose work status is congruent with their career orientation, will be more satisfied than mothers with a high drive for a career but who are not employed because they feel that their babies' needs require them to remain at home to provide exclusive maternal care. Similarly, mothers with a low career orientation who are forced to work for financial reasons, but have a strong belief in the need for exclusive maternal care, that is, where their employment status is again incongruent with their attitudes, will be less satisfied than mothers who do not work and have no desire to do so. The critical variable, as indicated by YARROW et al (1962) is maternal satisfaction, based on the congruence between the two variables. Therefore, in examining the effects of maternal employment upon the mother, as well as upon her child, congruence of attitudes and employment status can be expected to be a vital mediator. This will be considered further in the next chapter, in reviewing the effects of maternal employment upon mothers and children.

Before reviewing the literature upon these aspects, a further critical area, and one which intimately affects both parties, will be considered. Clearly, if a mother works outside the home, some form of alternative care must be provided for the child. The next section reviews the types of care available to the mother and other related factors such as stability of alternative care.
Day Care

The term 'day care' is a useful short-hand description for caretaking, predominantly of pre-school children, by a person or persons other than the child's mother during her absence due, most often, to her employment outside the home. One of the difficulties inherent in evaluating the effects of maternal employment is that 'day care' is not a homogeneous variable. Theoretically, the location may vary, from 'in-home' care to 'out-home' care; the caretaker may be a relative or unrelated to the child; the arrangement may be on a financial basis or informal; the caretaker may be trained in child care or untrained; the care may be individual or in groups; the caretaking may be custodial or structured into a programme of educational experience. Apart from varying on one or more of the above dimensions, day care also varies enormously in quality. Every mother undoubtedly has an opinion as to which form of substitute care she considers 'ideal', both in general terms and for her own child, but her choice of care for her child will in practice be guided by financial considerations, by what is available in her particular area, and open to her child. Finding the 'right' kind of care for her child is "one of the most important contributions to satisfaction for the working mother" (CLARKE-STEWARD, 1982, p.13). Dissatisfaction with child-care arrangements, according to FEIN & CLARKE-STEWARD (1973), varies with the socio-economic status (SES) of the mother. Low SES mothers expressed more dissatisfaction with their current child-care arrangements, particularly when the child was cared for by a non-relative outside the home. For children in day care centres, low SES mothers valued the acquisition of social and educational skills gained in centres, whereas high SES mothers were
more negative about centres and emphasised factors such as overcrowding, lack of individual care or excessive regimentation (FEIN & CLARKE-STEWART, 1973).

The rise in the numbers of mothers taking up employment outside the home has not been accompanied by a commensurate expansion in the numbers of day care places. (CLARKE-STEWART, 1982; MAYALL and PETRIE, 1983). CLARKE-STEWART (1982) suggests that the reason for the mis-match between supply and demand for places in day care centres lies in the controversies evoked by day care and the division between child care experts, ranging from "avid advocacy to adamant opposition", based on studies of the effects on young children from being separated from their mothers (cf. Chap. 5).

3.1 Types of Day Care

(i) **'In-home' Care**: CLARKE-STEWART (1982) suggests that 'in-home' care may be the most common form of care but it is the one about which least is known. According to her estimates, 68% of pre-school children of working mothers in the U.K. are cared for in their own homes, 52% of pre-schoolers in the U.S.A. Such care may be provided by the child's father (37% in the U.K., 20% in the U.S.A.); by some other relative (20% of children in both the U.K. and the U.S.A.); or by a non-related babysitter (11% in the U.K. and 12% in the U.S.A.).

The obvious advantages of 'in-home' care are that no travel is involved, the child is in familiar surroundings, siblings can be
looked after together, and, presumably, the mother is able to exert some influence over the care of her child. However, if the caretaker is related, (s)he is usually untrained and may or may not have any experience in child care. If the caretaker is unrelated, the same factors are operative, but where the caretaker is trained, e.g. a nanny, this is usually the most expensive form of child care.

According to YUDKIN & HOLME (1963) "the grandmother is indisputably the most popular mother-substitute. In practically every study she heads the list ...." (p.54).

(ii) Childminders Childminders, or day-care homes, as they are called in the U.S.A. and Canada, look after children in their homes, rather than in the child's home. According to BRYANT, HARRIS & NEWTON (1980) a childminder is "a woman who looks after other people's children between the ages of zero and five years, for at least two hours per day, and for reward. By law she must be registered with her local authority if she is not a close relative of the child."

The actual numbers of childminders are not known, JACKSON (1979) estimated that 1.2 million children were cared for by unregistered childminders. According to CLARKE-STEWART (1982) approximately 21% of pre-schoolers in the U.K. and 35% in the U.S.A. are cared for by childminders or day-care home providers. From their survey, HUGHES et al (1980) reported that 70,288 children were cared for full-time by 31,398 registered childminders, and that 17,949 children were cared
for part-time by 2,635 registered childminders (HUGHES, MAYALL, MOSS, PERRY, PETRIE & PINKERTON, 1980).

The advantages of childminders are that they are usually located close to the home of the child, and they are usually relatively inexpensive. According to MAYALL & PETRIE (1977), childminders are usually married women with children of their own who take their charges into their own families and daily routines, seeing their major role as caring for the physical needs of the children. However, in practice, the childminder may not be such an adequate caretaker as the foregoing suggests. JACKSON (1973) and JACKSON & JACKSON (1978) record cases of children being left unattended, in dangerous and/or unhygienic circumstances of which, presumably, the mother would disapprove, if indeed, she knew about. MAYALL & PETRIE (1977) reported that in their sample of 39 London childminders, caring for an aggregate of 155 young children, 1/3 of the childminders had some experience or training, and 2/3 were in contact with a social worker. Nevertheless, they considered that many minders cared for too many children, 40% of the sample caring for more than three children; they had too few toys, and there was very little interaction with the minder. They present a portrait of "sad, passive children, of anxious, harassed mothers, and hard-pressed minders insensitive to children's needs and distrustful of the mothers - who in turn are resentful of the minders" (p.48). One outcome of this state of affairs, they found, was that the children's language comprehension and expression was below average overall and reflected the poor, overcrowded and impoverished environments to which they were subjected.
In their most recent study, MAYALL & PETRIE (1983) examined the experiences of 66 under-two's at childminders in two inner and three outer London boroughs, compared with the experiences of 44 children of similar age in day nurseries. A total of 159 childminders were interviewed; the main sub-sample of 66 childminders were questioned about their contractual arrangements with the parents, expenses, child-care practice, housing, contact with social and health services. In addition, the minded child was observed both in the care of the childminder and of his mother, and the facilities of the childminding setting were assessed. With respect to childminding, they found that there were insufficient places to meet demand, and that certain minorities, e.g. babies, handicapped children, and ethnic groups, were disadvantaged, with fewer places available to them, and of those that were available, both the physical environment and the amenities were impoverished. Most of the childminders in the inner London boroughs live in flats with no gardens. Approximately 1/3 of the childminders nevertheless provided a good setting for child care in terms of space, comfort, safety, hygiene and play equipment; another one-third provided a poor setting in these terms. MAYALL & PETRIE suggest that the latter finding would seem to indicate that local authorities do not make use of their discretionary powers to refuse registration because of inadequate housing or equipment. They make several recommendations for improving childminding services, including recruiting campaigns by local authorities where an unmet demand exists, advisory services to assist mothers finding childminders, more stringent standards for the
registration of childminders, possibly including some form of training or the provision of guidelines for the probationary childminder, and stricter enforcement and monitoring of DHSS recommendations about the number of children cared for by a childminder.

They comment:

"Raising standards for premises, equipment, child care and numbers of children is desirable, not least in order to meet DHSS recommendations. The central objection is strategic - any effective action by the local authority would be likely to drive many minders out of business, or underground. In the absence of sufficient minders, working mothers and fathers would then turn to the unregistered to care for their children. It seems likely indeed that within the present policy framework no measures will increase the number of good quality places at minders" (1983, p.210).

(iii) **Day Care Centres** Day nurseries, both in the U.S.A. and in the U.K. have a history, dating back over 100 years, of providing care for the young children of working mothers. Such centres vary considerably in quality, in terms of the numbers of children cared for, in the physical conditions in which children are cared for, and the amount of formal educational activities offered.
In the United States in the 1960s, a federal programme of expansion of day care facilities was launched as part of the War on Poverty campaign and in recognition that certain sub-cultures were failing to achieve the projected standards of education and mobility for all, regardless of social class or ethnicity (HOROWITZ & PADEN, 1973). National experiments of educational enrichment or compensation, most popular of which was Head Start, were authorized, funded and launched (FEIN & CLARKE-STEWART, 1973; HOFFMAN & NYE, 1973). However, according to HOFFMAN & NYE (1973), the proportion of children served by such programmes remained relatively small, catering for no more than 20% of the eligible population.

According to CLARKE-STEWART (1982), the advantages of day care centres are that they are usually stable, keep predictable hours, are publicly accountable, usually have some staff with training in child development, and offer safe physical environments rich in materials and equipment. The disadvantages are that they 'are often located at some distance from the child's home, have less flexible hours, do not care for sick children, are more expensive and are less available because of strict eligibility criteria' (p.55).

In the U.S.A., more than in Great Britain, some day care centres are proprietary, privately run for profit. The obvious disadvantage of such centres is that the only criterion for eligibility is the ability to pay the fees.
Some centres are run by companies, factories, universities or trade unions as a fringe benefit for their employees. The advantages of such centres are obvious from the point of view of the mother, and the staff are usually well-trained, but statistically, they are rare, both in the U.K. and in the U.S.A., compared, for example, with China or the U.S.S.R.

Public day nurseries, funded by central or local government, offer quality care to pre-schoolers, but in the U.K. such places are rarely available unless the mother is a single parent forced to work (CLARKE-STEWART, 1982).

In their study, MAYALL & PETRIE (1983) found that only about 1/5 of the mothers of their nursery sample of 40 mothers were single parents who needed to work, but who had no other problems. The most frequently reported problems contributing to the child's placement in a day nursery were to do with housing and family relationships; 51% of the mothers had problems with poor or unsuitable housing, 43% had problems with relatives or husbands, 25% had had physical attacks made on them and/or their child, 42% had sought professional help for psychiatric problems in the preceding twelve months. MAYALL & PETRIE found that day nurseries in the five London boroughs they studied were insufficient to meet the demand for places, most having long waiting lists. The hours of care provided were not tailored to meet the needs of full-time working mothers, and the high rate of staff turn-over tended to create instability for the very children
deemed to be in need of stability. Day nurseries, being the responsibility of the local authority, offered spacious surroundings and adequate equipment, but nursery nurses were criticised for being too immature and insufficiently trained to provide children with a warm, loving relationship and sufficient stimulation. Children requiring stability to compensate for their impoverished home environments are often unable to form stable relationships with their nurses, one suggested reason for the rapid staff turn-over being low rates of pay and lack of autonomy in often inflexible regimes.

On a part-time basis, day care may also be provided by a nursery school, nursery class or playgroup. According to CLARKE-STEWART's estimates, 9% of eligible three-year olds and 33% of four-year olds in the U.K. are in nursery schools or classes, compared with 26% of three-year olds and 48% of four-year olds in the U.S.A. However, whilst usually offering good educational and play opportunities, such facilities are age-restricted and do not meet the needs of full-time working mothers.

Playgroups are generally more informally organized and part-time, offering only one or two mornings per week. They are not generally aiming to provide day care for children of working mothers, but rather to provide social and play activities for children of middle-class mothers, who are often involved in the running of such groups. Increasingly, play group leaders have attended courses run by the Pre-school
(iv) **Other arrangements** The above list does not exhaust the avenues open to the mother who wants or needs to take up paid employment. A small number of mothers are able to take their children to work with them but this possibility is naturally dependent upon the type of employment and the goodwill of the employer. Examples of this type of employment are domestic jobs, office cleaning or playgroup assistants. YUDKIN & HOLME (1963) found that only 5 of their sample of over 1200 mothers had this facility.

A further option open to some mothers is to take employment that can be carried out in their own homes. Examples of this type of employment are envelope addressing, telephone sales and piece-work assembly. Very little is known of how many women take either of these two options, its effects upon the mother or upon the child. Similarly, little is known about how many children look after themselves, including the so-called 'latch-key' children (HOFFMAN & NYE, 1974). Predominant among the latter are children of school age whose mothers work hours which do not coincide with school hours. YUDKIN & HOLME (1963) found that this does not necessarily mean after school; in their study, 35% of mothers left for work before their children left for school, and half of the school-aged children whose mothers worked full-time ate their breakfast after the mother's departure.
Even if the mother's hours of employment do more or less coincide with school hours, there are large numbers of mothers who have to decide what to do about the care of their children during school holidays, or in the event of sickness of the child in term-time. In their study, *Yudkin & Holme* (1963) found that the most common after school care for 5 - 11 year olds was a neighbour. During school holidays 23% of 5 - 11 year olds, children of full-time working mothers, and 44% of 12 - 15 year olds were 'left to their own devices'. In the case of illness, 60% of mothers looked after the child themselves but "a suspiciously high proportion of children - almost exactly one-third - seemed never to be ill" (p.66).

3.2 Alternative Systems of Day Care

The types of day care described above are currently operative in Great Britain and the United States. In reviewing the literature, it is clear that researchers in the field are far from satisfied with existing government policies, provision, standards and programmes (*Clarke-Stewart, 1982; Hoffman & NYe, 1974; Fein & Clarke-Stewart, 1973; Mayall & Petrie, 1983*). For example, *Clarke-Stewart* (1982) concludes "It is clear that the solutions to the problem of providing alternative care for children of working mothers are makeshift at best" (p.127).

Alternative systems of day care do exist in other countries, their development being, in many ways, commensurate with the importance attached to the maternal labour force, the freedom of the individual mother to return to work if she wishes, and the cultural norms attached to methods of child-rearing.
In Sweden, for example, the initiative is taken by the Government by providing lengthy paid leave, both maternity and paternity. After such leaves are exhausted, public day care centres (daghems) are available for children aged from six months to seven years, providing either full or part-time care in purpose-built accommodation with trained staff. Nevertheless, CLARKE-STEWART (1982) reports that demand still exceeds supply, 65% of women choosing to work, with the result that licensed day care homes are also used.

In the U.S.S.R., the emphasis is on the contribution of the working mother to the national economy, hence the State has an extensive system of nurseries and kindergartens (yasli-sads). Very young babies are still most frequently cared for by a grandmother (babushka), since most mothers return to work before the end of their year's maternity leave (BRONFENBRENNER, 1970). It is estimated that 13 million children aged two to three years are cared for in such nurseries (CLARKE-STEWART, 1982), going on at age four years to a State kindergarten. Even in the nurseries, programmes are highly structured and reflect communist notions of collectivism.

In Israel, the emphasis is again on maternal contributions to the national labour force. Some 3% of the population live in kibbutzim, which provide Infant Houses, Toddler Houses and Children's Houses in which children are brought up together, rather than in their parents' homes. Trained staff (metaplot) bring up the children according to prescribed programmes of child care and instruction. Mothers spend their time with their babies in the Infant House, but after the first year, parents can only see their children at prescribed times in the Toddler and Children's Houses, and should not interfere with the
programme being carried out by their metapelet (RABIN, 1965; BETTELHEIM, 1969; BEN-YAAKOV, 1972).

Alternative systems, more or less similar to those outlined above, are practised in countries such as France or China, but the Russian, Swedish and Israeli systems have been most often studied and compared with the British and American responses to the need for day care. The findings of such studies will be referred to again in considering the effects of day care on children's development in the next chapter.
CHAPTER 7  

THE EFFECTS OF MATERNAL EMPLOYMENT AND DAY CARE

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1. Evaluating the Effects of Day care

Theoretical and Methodological Issues: The question of the developmental effects of day care are of theoretical interest as part of the broader issue of the developmental impact of variations in early child-rearing styles. One focus of such interest is the effects of extended experience in group care outside the home, compared with traditional Western patterns of home-rearing. In the United States, with the introduction of educational programmes of enrichment or compensation as early as possible in a child's life to combat the deleterious effects of cultural deprivation, psychologists were concerned that efforts to improve cognitive functioning should not take place at the expense of the mother-child relationship. It was feared that just as with major separations from the mother, daily separations might summate to interfere with the child's early relationship with and attachment to his mother, believed to be of critical importance for later development of personality and social relationships (cf Chapter 4).

The alternative view, summarized by RICCUTTI (1976), is that day care might not only NOT be harmful, but might be a "developmentally facilitating experience" enriching not only the life of the child but also fulfilling the mother's work aspirations, and indirectly enhancing the relationship between mother and child. Theoretically, day care may be seen to have one or more of the following objectives:
a) To provide a good substitute for home care.

b) To be the vehicle for compensatory/remedial experience.

c) To be the setting for the acceleration of normal development through programmes of infant education.

There is now a large corpus of studies on the effects of day care on young children, with comprehensive reviews by WALLSTON, (1973); ETAUGH, (1974, 1980); HOFFMAN, (1974); RICCUITI, (1976); BELSKY & STEINBERG, (1978); RUTTER, (1981); and BARTON & SCHWARZ, (1982). The central consensus of opinion is that there appear to be no adverse effects on cognitive, social and emotional development as a result of daily separations from the mother due to her employment. However, the reviewers consistently point to the difficulties encountered in evaluating the effects of day care, and call for further research into the long term sequelae of early daily separations. Some of the methodological issues recurring in such evaluations will be briefly considered before the research findings are reviewed.

(i) **Defining the day care experience:** In order for valid comparisons to be made, it is necessary to have some appreciation of the 'quality' of the day care experience (RICCUITI, 1976). Factors such as caretaker to child ratios, training of the caretaker, daily programmes, physical conditions contributing to health and safety, all have a bearing upon the 'quality' of the day care experience, but are rarely recorded in
studies of the effects of day care. HEINICKE & STRASSMAN (1977) stress that, for the purposes of research, the day care experience should NOT be viewed as homogeneous and unitary phenomena but should be carefully described in terms of its component parts.

(ii) **Age of entry into day care:** The age of entry is significant because of the formation of the specific attachment to the mother. Consequently, effects of day care can be expected to vary according to whether the child was less than six months of age upon entry and had not formed a specific attachment, or after 12-15 months when such attachments have usually been formed. (cf Chapter 5).

(iii) **Amount of day care experience:** The duration of the day care experience and the amount of time spent in such care on a daily basis are important factors. Most studies look at infants of mothers who work full time, whereas by far the largest group of working mothers work part-time, but little is known of the effects, if any, of part-time day care experience.

(iv) **Stability of day care:** The history of the child's day care experience is not always known; some children have had a variety of caretakers, others only one. ANDERSON (1980) calls for a reconceptualization of day care and maternal employment issues. She argues that quality and stability of day care may be the crucial components in the determination
of socio-emotional adjustment, and as such, they should be included as independent variables. Research designs should therefore be longitudinal in order to assess the significance of these early experiences for later adjustment.

(v) **Type and location of day care:** Most studies compare home-reared children with children attending a day care centre. With a few exceptions, (e.g. PISTRANG, 1982; HOCK, 1976), studies do not compare different types of non-maternal care, such as day centres and childminders, where children receive group care, or different types of individual care such as babysitters or relatives, nor do they attempt to make comparisons between individual and group care.

(vi) **Homogeneity of samples** A serious methodological problem for the generalizability of research findings is the assumption of homogeneity of samples (WALLSTON, 1973; BRONFENBRENNER et al, 1977); Samples of mothers are frequently categorized as either working or non-working, with little or no account taken of differences in social class, ethnicity, education or parity, nor of such endogenous variables as personality, career orientation or child-rearing ideology. WALSTON calls for studies which deal with these factors as interacting variables. Similarly, YARROW (1961) concludes that psychologically, maternal employment subsumes many variables, and WOODS (1972) argues that "the global concept of "working mothers" should be further sub-divided, especially with a view to more specificity on the family life patterns and structure which maternal employment produces" (p.14).
In a similar vein, infants are frequently assumed to form homogeneous samples, with little or no account being taken of differences in their birth experience, or 'foetal ecology', temperament or developmental status. In short, according to WALLSTON, there is a need for studies to take account of a whole range of potential differences which may ante-date the onset of maternal care.

The problem of measurement of the effects of day care: The focus of attention in terms of outcome measures has consistently been the child, most often in terms of developmental or intelligence quotients, or in terms of the infant's attachment to his mother (RICCUTTI, 1976). RICCUTTI points out that in the case of attachment, studies have usually relied upon one particular approach, namely the infant's reaction to a brief separation from the mother in a strange (artificial) situation, with brief looks at mother-infant interaction, again often in contrived situations. Concern with the ecological validity of such data is widespread; RICCUTTI (1976), BRONFENBRENNER (1977), BELSKY & STEINBERG (1978) all cogently argue in favour of the adoption of an ecological perspective on day care to take account of the broader social systems upon which the effects of day care impinge. A variety of dependent measures in a plurality of actors is potentially available, and whole patterns of interaction, of psychological relevance rather than statistical significance, should be examined. RICCUTTI (1976) comments that it is 'unfortunate that so little systematic effort has gone
into the assessment of the impact of infant/toddler day care on parents and on the adaptive functioning of the family as a whole.

Hand in hand with the need for an ecologically valid approach, reviewers of the literature also call for multi-method approaches to the whole question of non-maternal care, and for the use of convergent measures to validate the effects which are being observed (HOFFMAN, 1974; RICCUITI, 1976; BELSKY & STEINBERG, 1978; RUTTER, 1981; BARTON & SCHWARZ, 1982). HOFFMAN (1974) states that 'the typical study deals only with two levels - the mother's employment status and a child characteristic. The many steps in between - family roles and interaction patterns, the child's perceptions, the mother's feelings about her employment, the child-rearing practices - are rarely measured ... the distance between an antecedent condition like maternal employment and a child characteristic is too great to be covered in a single leap' (p. 205). In addition, she argues, too much of the maternal employment research is atheoretical.

Having examined some of the theoretical and methodological criticisms of studies of the effects of day care, the following two sections review the literature upon the effects of day care upon children, and upon mothers themselves. In line with the author's focus of interest on socio-emotional development, the emphasis of the review will be upon socio-emotional development with other effects, where recorded, being of secondary interest.
2.1. Socio-emotional Development

As indicated in Section 1, initial concern with the effects of maternal employment on the socio-emotional development of the child stemmed from studies of maternal deprivation and separation. Two major issues have been explored in this context, firstly, whether repeated separations from the mother would render a child less secure, confident and trusting in his attachment to his mother; secondly, whether the child's special tie to his mother would be weakened or somehow diluted as a result of having alternative caretakers. As several authors have pointed out, dire consequences are neither inevitable or irreversible (YARROW, 1964; RUTTER, 1972; CLARKE & CLARKE, 1976). Other factors will mediate the effects of maternal employment upon socio-emotional development; WALLSTON (1973), for example, states:

'What is crucial is the availability of proper substitute care' (p. 86). Another major mediator stressed by MOORE (1963, 1969) in his longitudinal study of London children who had been cared for by someone other than the mother for at least one year before the age of five is the stability of alternative care. These factors, and others claimed to mediate the effects upon the child, will be considered further as the available evidence is reviewed.

1. Initial adaptation: There has been little systematic research directed towards the initial adaptation of the infant and his mother to daily separations as a function of the child's age.

In a small longitudinal study, WILLIS & RICCUTI (1974)
examined the reactions of 10 infants to separation. They found little evidence of separation distress in the infants who were aged 2-6 months on entry into day care, what little distress was observed occurring at about nine months of age. Similar findings are reported by RICCUITI & POESKY (1973). McCUTCHEON & CALHOUN (1976) looked at the social and emotional adjustment of infants and toddlers aged 5-30 months to a day care setting. They found that the children adjusted rapidly and well to their new environment, crying and playing alone decreased significantly over the first month, interactions both with peers and adults increasing over the same period.

Attachment patterns: In an early study of its kind, Betty Caldwell and her colleagues at the Children's Day Centre, Syracuse, found no adverse effects upon 18 young children at 30 months of age, in terms of child-mother or mother-child attachment patterns, as compared with 23 home-reared children (CALDuell, WRIGHT, HONIG & TANNENBAUM, 1970).

However, BLEHAR (1974), using AINSWORTH's Strange Situation, reported qualitative disturbances in the mother-child relationship of 20 2-3 year olds who had been in day care for approximately five months. The older children are reported to have manifested 'anxious-ambivalent' patterns of attachment, (as described in Chapter 5), the younger children manifesting 'anxious-avoidant' patterns. BLEHAR attributed the differential outcomes of the age of entry into day care, and the overall disturbances to 'the disruptive effects of frequent daily...
separations. However, several methodological criticisms have been directed at BLEHAR; BELSKY & STEINBERG (1978), for example, suggest that since the observers were aware of the children's group status and the experimental hypotheses, a self-fulfilling prophecy could have occurred. In addition, BLEHAR did not assess the attachment patterns of her sample before the day care experience. Nevertheless, BLEHAR's findings were taken very seriously and several replications were attempted.

In a partial replication, MOSKOWITZ & SCHWARTZ (1976) found that it was the home-reared children who were more distressed during the second separation episode than the day care children. In a further replication attempt, they introduced changes into the procedures to minimize experimenter bias. It was again found that the home-reared children, rather than the day-care children, as reported by BLEHAR, exhibited more distress upon separation from the mother. (MOSKOWITZ, SCHWARZ & CORSINI, 1977).

Two further attempts have been made to replicate BLEHAR's findings, but without success. In the first, ROOPNARINE & LAMB (1978) used the Strange Situation to investigate attachment and exploratory behaviour in 36-month old children, before and after the day care experience; in the second, PORTNOY & SIMMONS (1978) looked at attachment in 41-45 months old children. In neither study were differences discerned between the day care and home-reared groups. Similar findings are reported by RAGOZIN (1980) who compared behaviour using the Strange Situation both in the laboratory and in a naturalistic observation.
HOCK (1976) found that there were no differences attributable to the mother's work status in the Strange Situation behaviour at 12 months of 74 infants of non-working mothers and 83 infants of working mothers, the majority of the latter having worked for at least 6 months of the infants' first year. There were no differences either if the mother worked full or part-time.

This result is very interesting for two reasons; firstly, the 'Strange Situation' procedure was carried out at the same age as in AINSWORTH's study, and yet no differences were found. Secondly, the majority of mothers had been working since the infant was aged six months, and were therefore absent for most of the day during the period of attachment formation, when the effects of daily separations from the mother would be expected to show the most clearly.

Different results again were reported by DOYLE and her colleague. They compared reactions to brief separations of 11 children who had been in day care for 12 months and were then aged 23 months, 9 children cared for by babysitters or grandparents for an average of 10 months, and 13 home-reared children. They found that the home-reared children cried more and played less than either of the substitute care groups during the second separation. In their view, these findings reflected the fact that home-reared children had less experience of brief separations from the mother than the other two groups and hence were more sensitive to the experimental situation (DOYLE, 1975; DOYLE & SUMMERS, 1975).
Similar results are reported if the children are exposed to unfamiliar social situations involving strange adults and/or children. RICCUITI (1974) compared 9 infants aged 12½ months, who had entered day care between 2 and 6 months of age, with home-reared infants when approached by a female stranger in an unfamiliar playroom. Both groups of children reacted negatively to the stranger in the absence of the mother, the day care children more so, although not significantly; the day care children were however more prepared to move away from the mother and to approach other children.

Investigating the possibility that attachment to the mother might be weakened as a function of repeated separations, RAMEY & FARRAN (1976) observed children who had been in day care from the age of 3 months, and were then aged 19 months, in interaction with their mothers, caretakers and a male stranger. They report that more attachment behaviours were directed towards the mothers. In comparing infant behaviours towards mothers and teachers, they found that the infants spent more time with the mothers than with the teachers and approached the mother, rather than the teacher, for help when faced with a mildly difficult problem, although their day was normally equally divided between the two (FARRAN & RAMEY, 1977). The authors concluded that the day care experience had not weakened the infants' primary attachment to the mother.
A useful comparison of reunion behaviour in the laboratory and the day care setting was made by BLANCHARD & MAIN, (1979). In a sample of 21 middle-class Caucasian children, they found that avoidance of the attachment figure in the two settings was strongly correlated but was related to the length of time spent in day care, such that children who had spent a longer period in substitute care had lower scores for avoidance and higher scores for social-emotional adjustment.

3. **Type and Location of Care:** As indicated in Section 1(v), few studies have directly investigated the effects of different types of care. The importance of this dimension is however fully recognised by Ellen HOCK and her colleagues. BROOKHART & HOCK (1976) found a significant interaction between type of care and sex of infant which prompted a more detailed investigation of the relationship between rearing condition, as experienced in group day care, individual day care or maternal home care, and the social behaviours of male and female infants. In the latter study, HOCK & CLINGER (1980) studied 20 one-year old infants in each of the three types of care, using AINSWORTH's Strange Situation Behaviour Instrument. It was again found that the provision of non-maternal care affected the sexes differently. Home-reared girls exhibited fewer and less intense proximity-maintaining behaviours than girls in non-maternal care, whereas for boys, those experiencing non-maternal care exhibited fewer proximity-maintaining behaviours than home-reared boys. The authors suggest that
empirical data are lacking to account for the differential sensitivity of the sexes to salient environmental events, such as day care.

In her earlier study, HOCK (1976) found there were no overall differences in attachment behaviours to the mother during the Strange Situation as a function of maternal employment status, but that with regard to the Stranger, infants of non-working mothers were more contact-resisting than infants of working mothers. Infants in group care were more resistant both to the mother and to the Stranger than infants in individual care.

However, in the study by COCHRAN (1977), using a different measure, systematic comparisons were made of the environments and experiences of 120 12-, 15- and 18-month old children in three different child care settings in Sweden. One group were being reared at home by their mothers, one group were attending a day home (cf Chapter 7, Section 3.2), and the third group were attending a day care centre. COCHRAN was unable to find any overall differences in a separation exercise carried out in the child's home, and does not allude to a sex by type of care interaction, as reported by HOCK and her colleagues.

4. Age at Entry: In the study by BLEHAR (1974), described above, differences in attachment behaviour of day care children were attributed to differential age at entry. Age at entering day care and emotional security were investigated in a study
by SCHWARZ, KROLICK & STRICKLAND (1973). Children who had been attending day care from early infancy (5 to 22 months) were matched case-for-case with children entering day care for the first time at 24-47 months. Ratings of affect, tension and social interaction at Day 1 and Week 5 in a new day care centre indicated that children with previous extensive experience of day care made the transition to the new centre with less disturbance than children who might have been considered more emotionally secure, having spent their first three years in the care of their mothers. SCHWARZ et al consider that, as no differences could be detected between the two groups in maternal attachment patterns, there was no support for the popular hypothesis that insecure attachment results from infant day care experience. However, VAUGHN et al (1980) found a greatly increased incidence of anxious-avoidant attachment in infants whose mothers returned to work during the first year of life, compared with those whose mothers returned between 12-18 months, or home-reared controls.

5. Social Interaction: A few studies have looked at the interaction between employed mothers and their children compared with that of non-employed mothers and their children. HOCK (1976), for example, in the study described above, observed children in the first year of life and found that essentially the employed and non-employed groups were similar in the behaviours exhibited. However, COHEN (1978) looked at mother-child interaction at 21 months in a semi-structured laboratory play session and found there were
significant differences between the employed and non-employed groups. Non-employed mothers gave more positive attentiveness to their children, their children vocalized more and there were more reciprocal social interactions between non-employed mothers and their children than between employed mothers and their children. However, as COHEN herself warns, her analysis was post-hoc and the data were obtained as part of a longitudinal study of pre-term children. In addition, more of the employed group were single-parent families than the non-employed group. She suggests that the premature children represent a group considered to be at risk for developmental problems, and it may be the case that the effects of maternal employment are heightened in such vulnerable groups, especially where the family is not intact. It therefore becomes all the more important for a thorough investigation of baseline differences between groups of children and their families, before looking at the effects of a variable such as maternal employment.

The interactions between mother-child and caregiver-child were compared by RUBENSTEIN, PEDEREN & YARROW (1977). They time-sampled caregiving behaviour during two home visits of three hours duration and found significant differences between the two groups. Mothers showed more positive affect, social play and stimulation than the substitute caregivers. There were no differences between the 5-6 month old infants on 16 out of 17 measures of infant functioning, the only difference being in more focussed exploration in mother-
reared infants. However, in a further study a different picture emerged; there was more expressed positive affect, more reciprocal smiling, hugging and mutual play in the day care group, more negative affect, crying and reprimanding at home (RUBENSTEIN & HOWES, 1979). The authors speculate that in the isolated setting of the home, the infant makes more demands on the caregiver than in a centre, resulting in maternal irritation and restrictiveness, and that children find greater satisfaction in peer interaction than in adult interaction, resulting in more positive excitement, smiling, laughing in the day care centre. In a follow-up study at age 3½, children were compared with respect to aspects of emotional development. Using the behavioural screening questionnaire devised by RICHMAN & GRAHAM (1971), it was found that day care children scored significantly higher for temper tantrums, fears and activity than their home-reared counterparts, although the means of the groups on the summary scores were similar. They were also less compliant both behaviourally and verbally, and, according to maternal reports, less likely to show attachment behaviour to people outside the family. The children were separated from their mothers for 60 minutes for the purposes of testing, but there were no differences in the observed patterns of attachment behaviour activated by these separations (RUBENSTEIN, HOWES & BOYLE, 1981). Like other researchers, the authors consider the peer group as 'a key influence in promoting non-compliance with adult standards' (p. 216). They are careful to point out, however, that in this study, as in most other studies
'a potentially confounding variable not controlled by matching was the possibility of pre-existing differences prior to day care' (idem).

They conclude that attendance at day care centres does not, overall, adversely affect the children's emotional development.

A useful comparison of vocal and non-vocal communication patterns in three groups of mother-infant dyads is reported by Schubert, Bradley-Johnson & Nuttal (1980). They observed interactions between 'home-makers' who preferred not to work, home-makers who would have preferred to work, and working mothers. They found that working mothers vocalized significantly more during the first 8 minutes of observation, but that these initial differences disappeared during the course of the observation. Differences were also found in infant behaviours for the first 8-minute observation, the infants of mothers who preferred not to work initiating more interaction with their mothers. The authors are not able to explain their findings with any confidence; they do suggest however, that employment per se does not seem to seriously affect mother-infant communication patterns. It seems reasonable to suggest that a comparison of differences between the groups prior to the onset of maternal employment might have illuminated their findings as differences in temperament between the infants, and in maternal career orientation, might have significantly affected the mother's decision to return to work and her satisfaction both with her infant and with her own status.
6. **Stability of Day Care:** As indicated in Section 1(iv) above, a recurrent methodological issue for the evaluation of day care is the stability of the day care experience. MOORE (1964, 1969), in his longitudinal study of 223 London children (referred to above), compared two matched sub-samples of 15 children, one group having been in stable day care, the other in unstable day care, and looked at various outcomes at age 6-7 years. He found that the degree of stability of arrangements for substitute care was the major variable to be associated with outcome. Children in unstable care beginning before the age of 3 years were more dependent, clinging, fearful and more easily upset. MOORE suggests that an anxious or over-dependent outcome is more likely than the 'affectionless' outcome predicted by BOWLBY.

More recently, an important comparison was made by CUMMINGS (1980) of children's responses to stable and non-stable caregivers. He compared the reactions of 30 day care infants aged between 12 and 28 months with home-care children on waiting lists for day care places, to being left with a stable and a non-stable caregiver. In a laboratory setting the children did not differentiate between the caregivers, but they responded differentially to the caregivers in the day care environment. Although the procedure in the laboratory did not reveal differences, CUMMINGS suggests that in a familiar environment, the stability of the caregiver is important as 'children seemed to accept caregivers as substitutes for the mother' (p.36).
7. **Conclusions:** From the foregoing review of studies of the effects of maternal employment and day care upon infant socio-emotional development, it would seem that, with the exception of BLEHAR, researchers have generally observed minimal deleterious effects.

ETAUGH (1974, 1980) expresses the general consensus of reviewers of the literature in concluding that young children can form as strong an attachment to the working mother as to the non-working mother, provided that there is frequent interaction when the mother and her infant are together.

RICCUTT (1976) concludes that some data not only suggest that day care beginning in the first two years of life has no disruptive influence on the affectional relationship between mother and infant, but under favourable circumstances might be of benefit in allowing children to learn to adapt to unfamiliar social situations.

BELSKY & STEINBERG (1978) concur: 'day care is not disruptive of the child's emotional bond with his mother, even when day care is initiated in the first year of life. In addition, there is no indication that exposure to day care decreases the child's preference for his mother in comparison with an alternative familiar caregiver' (1978, p.944).

Clearly, where data are lacking is in the assessment of differences between the infants of working and non-working mothers prior to the onset of maternal employment, differences in the mother-child interactions of the two groups, and in the study of long-term effects.
2.2 Cognitive Development

There has been considerable research effort in the United States directed to the assessment of the effects of day care upon the intellectual development of the child. However, as indicated in Section 1(i), most studies have been concerned with children enrolled in high quality University-based programs, often with the specific goal of providing 'cognitive enrichment'. The findings of such studies may not be generalizable to the kind of care available to most working mothers and will not be reviewed in detail here. Where programmes of 'intervention' or 'enrichment' have been formulated, evaluative studies have generally shown that the preschool lower and middle class children enrolled in such programmes have showed gains in developmental quotient or intelligence quotient compared with non-intervention control groups. Typical of such studies is the final report of the longitudinal New York Infant Day Care study in which test scores of approximately 400 children in a variety of rearing environments, including home-rearing, centre day care and family day care were analysed. At 18 months of age, children who had been in centre day care between the ages of 2 and 14 months scored higher on the Bayley Scale of Mental Development than children reared in family day care or at home, a difference that was maintained to 36 months, as tested by the Stanford-Binet (GOLDEN et al, 1978).

Of more interest to the current review are those studies of the effects of maternal employment that report on cognitive functioning as an outcome measure. For example, COHEN (1978) in the study reviewed above, found that children of non-employed others scored
significantly higher than children of employed mothers on the Gesell Development Schedules at 24 months, and on the Bayley Mental Scale at 18 months and 25 months. Despite the shortcomings of this study, (discussed above), it is apparent that such findings are more germane to a consideration of the effects of maternal employment than are the intervention studies.

Unfortunately, as pointed out by BELSKY & STEINBERG (1978) there is a paucity of data on how day care affects cognitive development in 'real-life' settings.

For very young children, RUBENSTEIN et al (1977), in the study described in Section 2.1 above, found no significant differences between 5-6 months old infants either home-reared or with substitute caretaker during the day on the Bayley Mental Scale, Psycho-motor Scale and subscales of the Infant Behaviour Record. The authors suggest that 'these data highlight the relative invulnerability of infants to daily separation from the mother in their first six months of life despite less positive affect and less varied stimulation from substitute caregivers' (p. 530). In COCHRAN's Swedish study, also reported in Section 2.1, it was again the case that no developmental differences were found in 12, 15 and 18 month old infants, using the Griffiths Mental Development Scale, in the three child-rearing environments examined.

For school-age children, WOODS (1968) found that full-time maternal employment was associated with higher IQ scores in working class families, drawn predominantly from black ghetto areas where women had to work full-time to ensure family survival. In middle-class
families, the relationship with maternal employment seems to be more complex. HOFFMAN (1963b) found that in a sample of white families, the children of working mothers who LIKED to work had lower IQ scores than did the matched children of non-working mothers. The children of the working mothers who DISLIKED work were not, however, different from the non-working matched group. A possible explanation for such findings will be discussed in Section 2.5 below.

**Conclusion:** Reviewers of the literature generally conclude that the day care experience has little lasting effect upon the cognitive development of most children, as measured by standardized tests. BELSKY & STEINBERG (1978) summarize the consensus view that 'With regard to children's intellectual development, the available evidence indicates, in general, that day care has neither beneficial nor deleterious effects' (p. 944).

2.3 **Personality and Psycho-social Development:** WOODS (1972) conducted an interesting study among 108 5th grade urban ghetto children of working mothers, 95% of whom were black. Differences were measured in terms of 106 variables relating to personal and social adjustment, intelligence, and the child's perception of his/her mother. WOODS found that the mother's positive attitude toward employment had a widespread influence on the personality development of the child: mothers who were 'delighted with working' had children who scored high on the sections of the Californian Test of Personality called Sense of Personal Worth, Feeling of Belonging, Personal Adjustment and Family Relations. Conversely, mothers who disliked
working had children with low personality scores. WOODS explains her results in terms of the socio-economic function of employment, discussed in Section 2.5 (below).

In an earlier study, BURCHINAL (1963) found no relationship between maternal employment and a variety of personality variables in 7th and 11th grade children. However, correlations that did reach significance indicated that daughters of working mothers were more prone to neurotic and psychosomatic complaints. NYE et al (1963) found no differences, however, between children of working and non-working mothers in terms of anxiety, withdrawal tendencies or anti-social behaviour.

Several studies have shown that working mothers encourage independence and maturity in their children, more than non-working mothers (YARROW, 1964; BIRNBAUM, 1971; WOODS, 1972; HOFFMAN, 1974).

There is some evidence that children with early experience of day care are more aggressive and unco-operative in their peer relationships. In a follow-up study to that described in Section 2.1, SCHWARZ, STRICKLAND & KROLICK (1974) compared 19 three and four year olds who had been in day care from infancy with matched subjects with no previous experience of day care. They report that the group with extensive day care experience were significantly more aggressive, active and less co-operative with adults than the novitiates. These results are similar to those described by MOORE
(1963, 1969) in his London study. He found that children who had experienced substitute care before the age of 5 were significantly more assertive, less conforming, less impressed by punishment, less adverse to dirt and more prone to toilet lapses than a home-care group equated on a number of demographic variables.

The effects of peer experience outside the home may exert an influence even if limited to part-time attendance in a playgroup. VANDELL (1979) reports that play group toddlers became more active in their parent-child interactions than home care toddlers after 3-6 months experience, although no differences were observable prior to the playgroup experience.

In a review, SCHWARZ (1975) concludes that, taken as a whole, studies suggest that extensive day care experience in the pre-school years is associated with a tendency, especially in boys, for somewhat less co-operative and less positive interactions with adults, whose approval may be less salient for such children than that of their peer group socializers.

BRONFENBRENNER, BELSKY & STEINBERG (1977) similarly conclude from their review of 21 studies that children with experiences in day care centres interact more with their peers in both positive and negative types of behaviour, and that these effects endure at least throughout the early years of elementary school. Children in day care for extended periods show higher levels of insecurity, increased aggression to both peers and adults, and decreased co-operation and involvement in educational activities once the child enters school. The authors suggest that such outcomes seem to--
'reflect the special character of children's peer groups in America, which are distinguished by a stress on autonomy, individualism, freedom of expression, competition, and permissiveness toward and encouragement of interpersonal aggression' (1977, p.64).

2.4 Supervision and Delinquency: In HOFFMAN's (1974) review of the literature, she considers the hypothesis that maternal employment means inadequate supervision of children, which, it has been suggested, results in higher rates of delinquency for the children of working mothers. She concludes that the data, although 'not very solid', suggest that in the lower class, working mothers provide less adequate supervision of their children (cf Chapter 7). Adequacy of supervision does seem to be related to delinquency and social adjustment, although the children of working mothers are not more likely to be delinquent than the children of non-working mothers. This complex conclusion is illuminated somewhat by a consideration of the MEANING of maternal employment for the family and class differences.

2.5 Class Differences: WOODS (1972) suggests that the effects of maternal employment are more readily explicable if maternal employment is viewed in respect to its socio-economic function.

'Rather than lumping all the conditions of maternal employment together, it seems apparent that maternal employment should be defined in two different ways for social classes. Lower-class maternal employment may be required for
family survival and well-being and as such may be so perceived by husband, wife and children. Obviously then, one must deduce that the best circumstances for family survival and well-being is the situation where the mother assists in providing steady and substantial income, as in full-time employment. For intact middle and upper-class families with employed fathers, maternal employment is not absolutely necessary for family survival and well-being, and, as such, cannot be viewed from the same perspective (or even, perhaps, as the same variable) as lower class maternal employment (WOODS, 1972, p.24).

She goes on to suggest that where choice rather than need propels a mother to work, the mother will experience more role strain and conflict, and the children will be more likely to perceive her employment as rejection. The best compromise, she suggests, for mothers who do not need to work full-time for the survival of the family is part-time employment, allowing the mother to fulfil, albeit only partially, her own need for achievement without detracting too much from contact with the children.

In her study of predominantly black families, full-time working mothers were a positive factor in the child's social adjustment (WOODS, 1972). Given the economic circumstances of the families, maternal employment was both respected and appreciated. The children had extensive responsibility for household tasks and care of siblings, and in addition to being more competent and independent, also showed higher school achievement.
2.6 **Sex Differences**

HOFFMAN (1974) criticises early studies of maternal employment for failing to examine findings separately for each sex; recent studies, she comments, have generally, but by no means completely, corrected this oversight. Theoretically, HOFFMAN argues, the effects of maternal employment must be different for males and females:

"For one thing, although maternal employment might affect all children's concepts of the woman's role, it should only affect the girl's self-concept, unless the mother's working also reflects something about the father. In the lower classes, the mother's employment may communicate to the child that the father is an economic failure."

(HOFFMAN, 1974, p.208)

Studies by HARTLEY (1960) and DOUVAN (1963) indicate that for girls maternal employment contributes to a greater admiration of the mother, aspirations to emulate her role, a wider perspective of the female role, and a self-concept that incorporates these aspects of the female role. For boys, maternal employment also influences their concept of the female role but its effects on their attitudes towards their fathers and themselves depends on the circumstances surrounding the mother's employment. HOFFMAN (1974) comments that it is not possible to attribute the greater independence or higher achievements of daughters of working mothers specifically to their employment. It may well be, for example, that the fathers of such girls contribute more to their upbringing. In a more recent review, she concludes
that maternal employment is a part of modern family life, not an 'aberrant aspect' of it, and that for adolescents, maternal employment is better suited to their needs than full-time mothering. For daughters, the effects are clear:

'the daughters of working mothers are more outgoing, independent, active, highly motivated, score higher on a variety of indices of academic achievement, and appear better adjusted on social and personality measures' (HOFFMAN, 1979, p. 864).

However, there is some evidence that for sons of middle class working mothers, there may be some cognitive deficit, as well as some effect upon attachment behaviour. Such differences are apparent even in very young children. BROOKHART & HOCK (1976), in the study reviewed above (Section 2.1.3) found a significant group by sex interaction in reactions to Strange Situation in the home and laboratory at one year of age. Day-care girls and home-reared boys showed more contact-maintaining behaviour to the Stranger than home-reared girls or day-care boys. HOCK & CLINGER (1980) also reported group by sex interactions in the social behaviours of 12 month olds. Home-reared girls cried less and exhibited fewer and less intense behaviours aimed at maintaining or regaining proximity to the mother in the Strange Situation than home-reared males or girls in day care.

RUTTER (1981), in his review of the effects of day care, suggests that while the sex differences outlined above remain rather inconclusive,
'it is highly probable that ultimately they will prove to be valid and meaningful in view of the evidence of sex differences in children's responses to other forms of stress' (p.19).

2.7 PHYSICAL and MENTAL HEALTH: Of the studies reviewed for the assessment of the effects of maternal employment, only one study included data on the health of children in day care, as compared with home-reared children. DOYLE (1975), in her study of 24 children, reports that the only differences in maternal reports of physical health (to include infectious disease, rash, fever, constipation, flu, colds, and ear infections), was in the frequency of occurrence of flu, more centre children having flu than home-reared children.

2.8 EFFECTS UPON THE KIBBUTZNIK: In Section 3.2, the Israeli system of kibbutzim was described. The brief record of the results of studies of the effects of maternal employment is included here for the purposes of comparison. Generally, in-depth studies of children reared in kibbutzim concord with the day care studies in finding no deleterious effects upon children's development (RABIN, 1965; BETTELHEIM, 1969). KOHEN-RAZ (1968) compared infants from 1-27 months reared in kibbutzim, institutions and private middle-class homes and found that at age 6 months, the kibbutznik were actually superior on the Bayley Tests of Mental and Psycho-Motor development, although these differences subsequently disappeared. RABKIN & RABKIN (1969) concluded that the kibbutznik

'show no sign of the emotional disturbance we would expect from a violation of our ideal mother-child relationship' (1969, p.46).
Although kibbutzim mothers usually return to work when their babies are aged six weeks, their children do not differ from their American counterparts in strength of attachment to their mother at the age of two years (MACCOBY & FELDMAN, 1972).

2.9 General Conclusions As indicated by the studies reviewed above, there seems to be no direct evidence of harmful effects of maternal employment on pre-school, school-age, or adolescent children. Even for very young infants, there appears to be no persuasive empirical research evidence thus far indicating that infant day care experience is likely to have unfavourable developmental consequences. According to RICCUITI (1976), this is a valid generalization whether one considers the child's intellectual development, affectional relationships between child and mother, or subsequent peer relationships and responsiveness to adult socialization influences. In the view of RUTTER (1981), the peer groups orientation and aggression observed in day care children still falls 'within normal levels'.

As indicated in Section 1, the failure of a simple unilinear model indicates the need for a change of direction in research to take account of differences antedating the onset of maternal employment. Such differences may lie in patterns of interaction, maternal career orientation, infant temperament, child-rearing attitudes or any of a host of variables between the two levels of maternal employment status and a child developmental outcome.
3. **EFFECTS UPON THE MOTHER**

As indicated in Section 1, few studies have focussed upon the effects of maternal employment upon the mother herself. In the following sections the available data will be reviewed in order to assess whether the mother herself escapes deleterious effects contingent upon her decision to take employment.

3.1 **Role-strain and conflict.** WOODS (1972) suggests that the effects of a mother's employment may well be mediated by the reasons for her employment (cf Section 2.5). Mothers who work from choice, rather than from financial necessity, are more likely to experience role-strain and conflict. Consequently, more middle and upper-class women are likely to suffer themselves as a result of their employment than lower-class mothers who can justify their employment as being in the best and observable interests of their families.

Some support for this view comes from BIRNBAUM's (1971) study of professional women who, despite being happy in their careers, indicated frequent guilt feelings about their children. RAPOPORT & RAPOPORT (1969) describe several foci of stress in professional families with dual careers. Overload dilemmas occur as a result of the working wife having to provide emotional and domestic support to her husband, as well as taking primary responsibility for child-rearing, while attempting to pursue a career of her own. Dilemmas arise, secondly, as a result of the possible discrepancy between personal
and social norms, usually where the mother chooses to pursue her career despite cultural pressures to exchange her career for that of being a mother. Most women succumb to these pressures, however, and 'drop out' of their careers at the time of childbirth.

An opposing view comes from DOUVAN (1963) who found that dual role strain was greatest for mothers in the lower class who were working full-time, the resulting stress having a negative effect upon their adolescent children. Normally, however, with the increasing age of the child, role strain and conflict diminishes for the working mother as the child becomes more independent, whereas for the non-working mother, it is often difficult to relinquish the role of 'protector and nurturer' (HOFFMAN, 1974).

3.2 Guilt and Anxiety: The results of role strain and conflict frequently are guilt and anxiety, as indicated above in the studies by BIRNBAUM (1971) and WOODS (1972). SPARGO (1968), in an earlier study, reported that mothers who gave their reasons for working as personal satisfaction rather than financial necessity experienced more guilt and more negative attitudes to the effects of maternal employment. Satisfaction with child-care arrangements was found to contribute to more positive attitudes. WALLSTON (1973) points out that the cultural milieu must be taken into account since in Western society, cultural pressures tend to make mothers feel guilty about working. In line with this view, RABIN (1964), in his interviews with mothers of kibbutzim, found that where maternal employment is part of the tradition, mothers were generally satisfied.
3.3 **Maternal Satisfaction:** Maternal satisfaction plays a key role in effective mothering (YARROW, 1961; YARROW et al, 1962; ETAUGH, 1974). Mothers who are satisfied, regardless of their employment status, are better mothers than those who are dissatisfied, in terms of setting limits for the child, sensitivity to needs, warmth and emotional satisfaction in the mother-child relationship. Satisfaction, as noted in Chapter 7, is related to the congruence pertaining between a mother's employment status and her attitudes to child-rearing. Hence the mother who really wishes to pursue her career but feels constrained to stay at home and look after the children is dissatisfied herself and at the same time provides less adequate mothering than the mother who prefers not to work.

Similarly, the mother who works but would prefer not to provides less adequate mothering than the mother who enjoys her work. (YARROW, 1961; YARROW et al, 1962; HOFFMAN, 1963).

HOCK (1978) conducted a study designed to examine satisfaction with mothering, guided by her belief that maternal satisfaction is related to the degree of congruence between a mother's perceptions of her infant's needs and her perception of her own needs. Where such needs mesh, she hypothesized, maternal satisfaction should be assured. She compared a group of 59 working and 71 non-working mothers, who did not differ significantly on socio-demographic variables, nor in terms of the mother's career orientation, interpretation of infant discontent, perception of infant distress at separation, mother's anxiety/guilt at leaving her baby, and attitudes to non-maternal care.
Her data suggest that 'mothers who tend to view motherhood as satisfying if working perceive no infant distress due to separation; if non-working, they perceive infant distress due to separation' (p.43). She concludes that if mothering is to be viewed as satisfying, there must exist a mesh between the mother's employment status and her perceptions of her infant's need for exclusive maternal care.

Among college graduates, BIRNBAUM (1971) found that mothers who had given up their professional careers in order to look after their children full-time had lower self-esteem, a lower sense of personal competence, expressed more concern over identity issues and indicated greater feelings of loneliness. They were more anxious about their children than the working mothers, and tended to stress the sacrifices that motherhood entailed. In later life, the homemaker may face personal problems of adjustment as her chosen life-style comes to a premature end with her children's independence.

3.4 **Mother-child Attachment:** BOWLBY (1958) stressed that mother-infant interaction was important for the development of the mother's attachment to her child. There are few data available on the strength of the attachment of working mothers for their children, since, for many working mothers, employment does not become a reality until the mother has experienced caring for her infant and developed an attachment to him. However, YUDKIN & HOLME (1963) warn that:
'the separation of children from their mothers for eight or nine hours a day, while the effects on the children may be counteracted by good substitute care, must have profound effects on the mother's own relationship with her young children' (p131-132).

For example, MOORE (1963), in his longitudinal study, found that mothers who started work early in the child's life did not themselves seem as attached to the child as mothers starting work later. In his London study, MOORE (1963, 1969) does not rule out the possibility that working mothers are different from the outset (cf Chapter 7), since some of his case studies reveal patterns of emotional rejection of the child. In some cases, he reports, the mother explicitly took up employment in order to escape from the child.

3.5 General Conclusions From the studies reviewed above, it would appear that maternal employment can have deleterious effects upon the mother herself in terms of physical overload, role strain and conflict, guilt and anxiety, and satisfaction with her role. Such effects are not inevitable, but are mediated by the MEANING of employment to the mother, with fewer difficulties for women who are able to perceive their employment as contributing to the well-being of the family, rather than pursuing their own career interests. A second major mediator is maternal satisfaction, which appears to be linked to the congruence between a mother's employment status and her perception of her infant's needs.
PART IV THE PRESENT STUDY

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CHAPTER 8 - THE EXPERIMENTAL DESIGN

1. Introduction

The Literature Review began with an exploration of the domains of socio-emotional development, including theories of emotion, bonding and attachment in both animals and humans, and temperament and sociability. These complex facets of psychological development were described in terms of the major theoretical expositions postulated this century and each attendant corpus of experimental studies was reviewed.

In Part III (Chapter 6) the domain of maternal employment was examined to include a sociological perspective and statistics on changing trends in Western societies, with a brief description of practices in non-Western industrial societies for comparison. The main thrust of empirical endeavours has been to cast maternal employment as an independent variable and to examine its effects on some aspect of child development, cast as the dependent variable. The vast corpus of studies adopting this simple unilinear framework was reviewed in Chapter 7.

In the following two sections the background, rationale and framework of the experimental design for the present study will be traced before proceeding to the formal detail of the design in Sections 4 and 5.
2. Problem and Perspectives

The general consensus of opinion among reviewers of the literature is that there appear to be no adverse effects on cognitive, social and emotional development as a result of daily separations from the mother (WALLSTON, 1973; ETAUGH, 1974, 1980; HOFFMAN, 1974; RICCUTT, 1976; BELSKY & STEINBERG, 1978; RUTTER, 1981; BARTON & SCHWARZ, 1982). However, the reviewers consistently call for further research, despite the vast number of studies already conducted, for the following reasons:

(i) The need for longitudinal designs

The majority of studies reviewed failed to take a longitudinal view of the effect being considered. Notable exceptions are the studies by MOORE (1963, 1969).

The reviewers are in agreement that only when the long-term sequelae of early daily separations from the mother, if any, are known, can causal inferences be drawn with any confidence about the effects of maternal employment on child development.

(ii) The need for comparisons between different types of non-maternal care

There has, generally speaking, been a dichotomy of approaches to the study of non-maternal care. Most studies conducted in
the United States have been concerned with centre day care (defined in Chapter 7, 3.1(iii)) as the most common form of non-maternal care.

In the UK, the paucity of day care facilities for children of working mothers focussed attention upon childminders and child-minding practices as the most prevalent form of non-maternal care (eg. JACKSON, 1973; MAYALL & PETRIE, 1977; BRYANT et al, 1980). A need clearly exists for studies which includes in their designs comparisons between group care in day centres, nurseries and by childminders; individual care by babysitters or nannies in the child's own home, or by childminders; and comparisons between group care and individual care.

(iii) The need for studies based on children whose mothers work part-time.

The majority of studies have been concerned with the effects of full-time maternal employment. However, as shown in Chapter 7 the ecology of present society is such that the majority of working mothers work part-time. It is therefore of greater relevance at the present time to study the phenomenon of part-time working in its own right, rather than as a corollary to full-time employment. With regard to the effects of part-time maternal employment, it might be supposed that any effects observable in the children of such mothers might be in an attenuated form of those observable in the children of mothers working full-time. On the other hand, a completely different pattern of effects might be observed. As to effects
on the mother herself, it might be the case that the negative
effects observed in mothers working full-time might be
resolved or diminished. In Chapter 8, Section 3, it was shown
that many full-time working mothers experience role-strain and
conflict, guilt and anxiety, and lowered self-esteem. It might
be the case that part-time employment aids the 'mesh between
the mother's employment status and her perceptions of her
infant's need for exclusive maternal care' as described by
HOCK (1978), and increases maternal satisfaction.

(iv) The need to establish homogeneity of samples

A serious methodological problem for the generalizability of
research findings is the assumption of homogeneity of samples,
both in mothers and infants (WALLSTON, 1973). Samples of
mothers are frequently categorized as either working or non-
working, with little or no control over differences in social
class, ethnicity, education or parity, or such endogenous
variables as personality, career orientation or child-rearing
ideology. Notable exceptions are HOCK and her colleagues
WALLSTON calls for studies which deal with these factors as
interacting variables. Also, as pointed out by WOODS (1972),
the meaning of a mother's employment to herself and her
family can profoundly alter its effects.

Similarly, infants are assumed to have homogeneous
experiences, with no account being taken of differences in
their birth experiences, temperament or developmental status.
As with the maternal variables cited above, any or all of these may interact with or mediate the effects of non-maternal care. This possibility was clearly recognized by RUBENSTEIN, HOWES & BOYLE (1981) who stated that pre-existing differences prior to day care might be "a potentially confounding variable".

Studies are therefore required which include in their designs examination of baseline differences on a variety of indicators which ante-date the onset of non-maternal care.

(v) The need to study effects of maternal employment on the family as a whole

At the interface of sociological and psychological interest, the work of RAPOPORT & RAPOPORT (1969) on dual careers, and Ellen HOCK and her colleagues (HOCK, 1978; HOCK et al, 1980) has been concerned with factors which influence women's decisions to work and the effects of that decision in terms of family interaction (STUCKEY et al, 1982). The important point emerging from such studies is that the effects of maternal employment may be more wide-ranging than most studies suggest. The focus of attention has, in the main, been in terms of outcome measures in the child. Whilst nothing should detract from the central importance of the child, nevertheless, like a stone falling into a pond, the ripples from maternal employment extend to the mother herself, the family, the changing face of woman's place in modern society, and society as a whole.
The need for ecological validity in experimental designs

Following on from (v) above, BELSKY & STEINBERG (1978) argue that there is a strong case for the adoption of an ecological perspective in day care studies to take account of the broader social systems upon which the effects of day care impinge. They advocate BRONFENBRENNER's (1977) ecological model of human development as a conceptual guide. Briefly, BRONFENBRENNER argues that, given the complex conception of the ecological environment in terms of interdependent nested systems, the best method of investigating these interdependencies empirically is by an "ecological experiment". He contends that:

"the primary purpose of the ecological experiment becomes not hypothesis testing, but discovery - the identification of those systems' properties and processes that affect, and are affected by, the behaviour and development of the human being" (p.518).

Human environments, he states, are so complex that they are unlikely to be captured, let alone comprehended, through simplistic unidimensional research models.

"Accordingly, in contrast to the classical laboratory experiment in which one focusses on a single variable at a time and attempts to 'control out' all others, in ecological research one seeks to 'control in' as many
theoretically relevant contrasts as possible within the constraints of practical feasibility and rigorous experimental design. Thus, "in ecological research the principal main effects are likely to be interactions" (ibid).

(vii) The need for multi-level approaches

Related to the need for an ecologically valid approach is the need for multi-level approaches identified by many reviewers of the day care literature. The reviewers acknowledge the complexity of the issue of non-maternal care and call for the use of convergent measures to validate and give meaning to the effects that are being observed, which are often difficult to interpret if isolated from their real-life setting (Hoffman, 1974; Ricciuti, 1976; Belsky & Steinberg, 1978; Rutter, 1981; Barton & Schwarz (1982).

In summary, despite a plethora of studies on the effects of non-maternal care, there is still a need for further research to investigate longer-term sequelae of early daily separations from the mother; forms of non-maternal care other than day care; effects, if any, of part-time maternal employment, differences, if any, between mothers and infants ante-dating the commencement of maternal employment, effects on individuals and social groupings other than the mothers and infants; and effects in ecologically-valid as well as laboratory settings, with the use of a number of convergent measures to validate and illuminate the effects being observed.
3. **The Perspective of this Study**

Clearly, no individual study can hope, at a stroke, to remedy all the methodological shortcomings identified in many earlier studies and to investigate issues previously left largely untouched. Nevertheless, the seven issues discussed above provide the framework for the design of the present study, with BRONFENBRENNER's (1977) model of the ecology of human development acting, as advocated by BELSKY & STEINBERG (1978) as a conceptual guide.

3.1. **Aims and Objectives**

The general aims of the present study are three-fold:

(i) to examine whether mothers and infants differ on a variety of indicators before the intervention of maternal employment for a sub-sample of the group.

(ii) to examine the effects, if any, of part-time maternal employment on the socio-emotional development (as defined in Chapter 11, Section 2.5) of infants compared with that of infants of non-working mothers.

(iii) to examine the effects, if any, of part-time maternal employment on the welfare and satisfaction of the mothers, compared with those of non-working mothers.

To realise the first aim, a number of specific objectives have been formulated, to take account, where feasible, of failings and shortcomings identified in earlier studies.
Objective 1: To look for any differences between mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment in terms of:-

(a) Selected Socio-demographic Variables
(b) Personality
(c) Child-rearing ideology
(d) General and emotional health
(e) Perception of pregnancy and birth
(f) Attachment to infant
(g) Satisfaction with maternal role.

In order to test the assumption of homogeneity, the following hypothesis is formulated:-

Hypothesis 1: That there will be significant differences between mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment, in terms of selected socio-demographic variables, personality, child rearing ideology, general and emotional health, perception of pregnancy and childbirth, and attachment to infant.

If the null hypothesis cannot be rejected, then the usual assumption of homogeneity will have been validated.

Given that the sample is divided into two groups on the basis of the mothers' future employment intentions, it is the author's contention that a number of differences WILL exist between the two groups in
areas related to employment status. The following hypotheses were formulated a priori to specify such differences, and are based on the findings of studies examined in the literature review.

**Hypothesis 2:** That mothers who propose to return to work part-time will be significantly more likely to have had working mothers themselves than mothers who propose NOT to return to work.

**Hypothesis 3:** That mothers who propose to return to work will have had a significantly greater educational investment than mothers who propose NOT to return to work.

**Hypothesis 4:** That mothers who propose to return to work and who have a greater educational investment in their careers will marry significantly later than mothers who propose NOT to return to work.

**Hypothesis 5:** That mothers who propose to return to work will have their first child significantly later than mothers who propose NOT to return to work.

**Hypothesis 6:** That mothers who propose to return to work will be significantly more career-oriented than mothers who propose NOT to return to work.

**Hypothesis 7:** That mothers with a strong personal career orientation will have positive attitudes to maternal employment in general.
Hypothesis 8: That mothers with a strong personal career orientation will have stable attitudes towards working after their first child is born.

Hypothesis 9: That mothers with a strong personal career orientation will prefer to work after their first child is born.

Hypothesis 10: That mothers with a strong personal career orientation will be significantly more likely to return to work within a year of their first child being born than mothers without a strong personal career orientation.

Hypothesis 11: That mothers with a strong personal career orientation will perceive pregnancy and childbirth more negatively than mothers without a strong career orientation.

Hypothesis 12: That mothers who propose NOT to work will express a stronger belief in the importance of exclusive maternal care than mothers who propose to return to work.

This objective seeks to take account of a major criticism of earlier studies that, apart from their employment status, mothers are assumed to be an homogeneous group. In order to fulfil this objective, a sample of mothers who are homogeneous with respect to ethnicity, social class, country of origin and parity, but differ in terms of their future employment intentions, is followed from the birth of their first child retrospectively to their own childhood and prospectively to the end of the first quarter of their child's second year of life. The data are then compared in terms of the mother's future employment intentions.
Objective 2: To look for any differences between the infants of mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment, in terms of:

(a) Birth experiences  
(b) Temperament  
(c) Developmental status.

This objective seeks to take account of the criticism of many earlier studies that, apart from the outcome measure adopted, infants are assumed to be an homogeneous group. In order to fulfil this objective, infants are assessed on the above variables when all the mothers are at home full-time with their babies, the contact starting when the infants are three months old.

In order to test the assumption of homogeneity, the following hypothesis is formulated:

Hypothesis 13: That there will be significant differences in birth experiences, temperament and developmental status between infants of mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment.

If the null hypothesis cannot be rejected, then the assumption of homogeneity will have been validated.

Objective 3: To examine any differences in the quality or quantity of social interaction in mother-infant dyads between mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment.
This objective seeks to take account of the possibility that differential patterns of social interaction may develop, depending on the mother's future employment intentions, which may mediate the effects, if any, of maternal employment upon infant socio-emotional development. Social interaction in the mother-infant dyads is therefore observed when the infants are aged three months and all the mothers are at home full-time with their babies.

In order to test this possibility, the following hypothesis is formulated:

**Hypothesis 14:** That there will be significantly different patterns of mother-infant social interaction between mothers who propose to return to work part-time and those who propose not to return to work, PRIOR to the onset of such employment.

As before, if the null hypothesis cannot be rejected, the assumption of homogeneity will have been further validated.

With respect to the second aim, the following specific objectives have been formulated.

**Objective 4:** To examine the ACTUAL employment status of the mothers when the infants are aged fifteen months.

This objective is designed to take account of the fact that mothers' actual employment status may differ from their intended employment status as stated soon after the time of the infant's birth. Where a
mother has taken employment, her reasons for doing so and the arrangements made for care of the child are elicited. In order to fulfil this objective, mothers are interviewed again when the infants are aged fifteen months.

**Objective 5:** To assess the socio-emotional development of the infants at fifteen months of age, in terms of the mothers' perception of the following:

(a) Social experience  
(b) Social skills and sociability  
(c) Emotional expression  
(d) Self-punitive, fearful or excessive behaviour  
(e) Empathy  
(f) Fear of strangers  
(g) Separation from mother  
(h) Tolerance of departures from normal routines  
(i) Independence  
(j) Problems or 'areas of difficulty'

This objective seeks to take account of a broader range of behaviours that might be subsumed under the heading 'socio-emotional development' than is commonly found in studies, bearing in mind the age of the child, and that it is the mothers' perceptions of such behaviour which will have the greatest influence both on subsequent behaviour of the child and on the mothers themselves. In order to fulfil this objective, mothers' accounts of the infants' behaviour in specific situations are sought, together with their perceptions of any 'problems' or 'areas of difficulty', when the infants are aged fifteen months.
**Objective 6:** To examine any differences in the socio-emotional development of 15-month old infants whose mothers differed in their future employment intentions when the infants were born.

**Objective 7:** To examine any differences in the socio-emotional development of 15-month old infants whose mothers differ in their actual employment status at that time.

These two objectives seek to establish whether there are any differences in socio-emotional development which may be attributable to the employment status of the mother. Objective 6 seeks to take account of the fact that a mother's intentions might change, and that the change, whether voluntary or involuntary, might influence the development of the child.

This represents an attempt to separate the effects, if any, and to infer whether it was the original intention, actual employment status, or a change between the two, which led to the effects. In order to fulfil these objectives, the socio-emotional developmental profiles of the infants are compared, firstly in terms of the original maternal employment intentions, and secondly, in terms of actual maternal employment status when the infants are aged fifteen months.

Whilst the literature review can provide no conclusive evidence of deleterious effects attributable to the day-care experience of infants, nevertheless, differences have been found in the emotional, fear and separation/reunion behaviours of infants of working mothers, compared
with infants of non-working mothers. (BLEHAR, 1974; COCHRAN, 1977; RUBENSTEIN & HOWES, 1979; RUBENSTEIN et al, 1981). Mothers in these studies were in full-time employment, and it might therefore be argued that part-time employment, and its corollary in part-time care, would result in an attenuation of such differences. However the studies reviewed generally utilized the 'strange situation' for the assessment of differences; it is the author's contention that maternal report will be able to access infant reactions in a wider variety of situations and over a greater time-span than can be accommodated in the 'strange situation' procedure and will be more likely to identify differences, however slight. The following hypothesis is therefore formulated:

**Hypothesis 15:** That there will be significant differences in the emotional fear and separation/reunion behaviours of infants whose mothers work part-time compared with infants whose mothers do not work.

As it was predicted that mothers' attitudes to working would be stable (Hypothesis 8), it follows that such differences should be found as a function of the mothers' employment intentions, as well as actual employment status.

**Hypothesis 16:** That there will be significant differences in the emotional, fear, and separation/reunion behaviours of infants whose mothers intentions are to work part-time, compared with infants whose mothers intentions are not to work.
There is some evidence to suggest that effects are more likely to be found in girls whose mothers work, and, to a lesser extent, in boys whose mothers do not work, than in girls whose mothers do NOT work. (BROOKHART & HOCK, 1976; HOCK & CLINGER, 1981). It is, therefore, further predicted

**Hypothesis 17:** That effects will be most pronounced in daughters of mothers who work part-time, and least pronounced in daughters of mothers who do not work.

If the above predictions are valid, then it seems logical to propose:

**Hypothesis 18:** That mothers who do NOT work will perceive and report fewer problems or 'area of difficulty' than others who work part-time.

With respect to the third aim, the following objectives have been formulated:

**Objective 8:** To assess and compare maternal satisfaction at the end of the period of contact in terms of:

(a) Career orientation
(b) Motherhood importance
(c) Congruence between career orientation and actual employment status.
(d) Maternal welfare
(e) Mothers' own ratings of satisfaction.
(f) Author's ratings of maternal satisfaction.

This objective seeks to take account of the relationship between career orientation, child-rearing ideology and maternal role satisfaction documented by YARROW (1964), and to examine maternal satisfaction as a function of maternal employment status, both intended and actual.

As discussed in Chapter 7 (Section 2.2) and Chapter 6 (Section 3.3), the key to maternal satisfaction appears to lie in the congruence between employment status and attitudes to child-rearing. However, it is the author's contention that satisfaction will also be affected by the congruence between career orientation and actual employment status, as the mother who would prefer to work but stays at home with her child, or the mother who would prefer to stay at home with her child but has to seek employment is unlikely to be fully satisfied. It is therefore proposed:

**Hypothesis 19:** That mothers whose employment status is congruent with their career orientation will experience greater satisfaction than mothers whose employment status and career orientation are incongruent.

The literature review suggests that the effects of incongruence will also be manifested in strain and anxiety. It is therefore postulated:
Hypothesis 20: That mothers whose employment status is incongruent with their career orientation will be more anxious than mothers whose employment status is congruent with their career orientation.

Since strain is likely to manifest itself in depression, it is further hypothesized:

Hypothesis 21: That mothers whose employment status is incongruent with their career orientation will suffer more depression than mothers whose employment status is congruent with their career orientation. A further effect of strain, according to the literature review, is often guilt. However, guilt is less likely to be found if a mother works from financial necessity, rather than personal choice. It is therefore hypothesized:

Hypothesis 22: That mothers who choose to work because of their strong career orientation will experience more guilt than mothers forced to work from financial necessity.
4. The Design

The present study is longitudinal in design, extending from soon after birth to the age of fifteen months. This design permits a detailed investigation of possible differences between groups of mothers and infants which ante-date, and therefore are independent of actual employment status at the time of assessment of the outcomes, in accordance with the first aim of the study, as set out in Section 3.1 above.

The major independent variable is Maternal Employment Status, which changes from 'intended' to 'actual' during the course of the study. Two levels of the independent variable are encompassed.

(i) **Non-working** - defined as 'no intention of taking paid employment outside the home during the infant's first year of life'.

(ii) **Part-time working** - defined as 'with the intention of taking paid employment outside the home for a period of not less than 8 hours and not exceeding 25 hours per week'.

With respect to the infants, the major dependent variable is socio-emotional development, measured at fifteen months of age. Socio-emotional development has been the dependent variable in a considerable number of studies; there is not, however, a standard definition of its meaning. Many studies assume that the development of an attachment to the mother is the focal developmental indicator.
at this age, and utilize infants' reactions in a laboratory-based sequence of the standardized 'strange situation' (Ainsworth & Wittig, 1969) as the dependent measure. In the present study, the complexity of the concept of socio-emotional development is fully acknowledged and an attempt is made to circumvent the difficulties of definition and measurement by obtaining measures of several aspects of development in order to build up a 'socio-emotional developmental profile' of the infant. The components of the 'profile' are set out in Objective 5 above, and the measures and method are described in Chapter 10.

With respect to the mothers, the major dependent variable is maternal satisfaction, assessed at three and fifteen months after birth. The components of maternal satisfaction are set out in Objective 8 above.

In order to obtain measures of the major dependent variables, a sample of sixty mothers who are homogeneous with respect to ethnicity, country of origin and social class but differ in terms of their future employment intentions is recruited soon after giving birth to their first child and followed until the infants are aged fifteen months. Half of the sample have no intention of working during their infant's first year of life, and half intend to work part-time. The study is conducted in two phases, Phase I being concerned with data collection to identify differences between the two groups of mothers in terms of the variables described in Objective 1 above; to identify differences in their infants in terms of the variables set out in Objective 2 above; and to identify differences in the quality or quantity of social interaction in the two groups of mother-infant dyads.
Phase II is concerned with data collection for the assessment of differences in the components of the major dependent variables, infant socio-emotional development and maternal satisfaction.

The design aspires to ecological validity in attempting to emulate the 'ecological experiment' as described in Section 2(vi) above. All procedures are carried out in naturalistic settings in as rigorous a manner as possible. The study uses a multi-method approach to data-collection, as advocated in Section 2(vii) above, comprising:-

(i) Interview data
(ii) Self-report questionnaire data
(iii) Direct observation data
(iv) Objective data.

5. The Study Plan

The study plan was as follows:-

(i) **Piloting**: A special sample, independent of the sample for the main study, was recruited in order to carry out pilot work, in the manner described in the next chapter.

Two months of pilot work preceded each of the two phases of data collection for the main study.

(ii) **Phase I**: Phase I of the main study entailed a period of five months field work, as follows:-
(a) **Maternity Ward Interviews**: Interviews were conducted in the post-natal wards of two large South London Hospitals once weekly throughout the data collection period in order to recruit subjects. Continuous recruitment was essential in order that procedures could be carried out by the author when all the infants were at the same age.

(b) **8-10 Weeks post-partum**: Finalization of sample was made by telephone interview as each potential subject reached 8-10 weeks post-partum. The purpose of the interview was to ensure that selection criteria were fulfilled and to confirm mothers' future employment intentions for allocation to groups.

(c) **3 months post-partum**: As each infant reached three months of age, two home visits were made to each of the 60 mother-infant dyads to conduct interviews with the mother, to administer developmental tests to the infants, to observe mother-infant interaction, and to complete ratings of infant and maternal characteristics.

(iii) **Inter-phase Contacts**: In the one-year period between contacts for each mother-infant dyad, a further three postal contacts were made to each mother to obtain information to update the data records for each family and to document significant events occurring during this period.
(iv) **Phase II:** Phase II of the study began six months after completion of Phase I as the infants recruited at the beginning of the phase reached fifteen months of age. A further period of three months field work enabled a third home visit to be made to each mother-infant dyad in order to conduct interviews with the mother and to collect data for the assessment of infant socio-emotional development at fifteen months of age.

The procedures for sample recruitment and data collection for the main study are described in Chapter 11. In the next Chapter, the Pilot Study is described, followed in Chapter 10 by an account of the measures and instruments employed.
CHAPTER 9  THE PILOT STUDY

1. Objectives of the Pilot Study

2. The Sample
   2.1 Sample recruitment
   2.2 Criteria for inclusion
   2.3 Allocation to groups

3. Procedures for the Pilot Study – Phase I
   3.1 Initial contact
   3.2 First home-visit
   3.3 Second home-visit

4. Procedures for Interphase Contacts

5. Procedures for the Pilot Study – Phase II

6. Treatment of the Data
A Pilot Study was planned in accordance with the general experimental design, described in Chapter 8. It comprises two phases, the phases being interleaved with phases of the main study such that Phase I of the Pilot Study was conducted prior to Phase I of the main study, and Phase II prior to Phase II of the main study.

1. Objectives of the Pilot Study

The objectives of the Pilot Study were as follows:

(i) To assess the recruiting procedure.

(ii) To assess the criteria for sample recruitment.

(iii) To gain practice in the techniques required for administration of the various instruments and measures.

(iv) To assess the validity and reliability of administration of the various instruments and measures.

(v) To assess the feasibility of the experimental design in terms of sample size and characteristics, scheduling of procedures and work-load demands.

(vi) To effect preliminary data analysis for validation of the experimental design.
2. **The Sample**

2.1 **Sample Recruitment:** Sample recruitment for the Pilot Study took advantage of ongoing recruitment procedures within the Thomas Coram Research Unit in connection with another study. The system comprised:

(i) Referrals, with maternal consent, of the names, addresses and telephone numbers of mothers who had recently given birth to their first child, by Health Visitors in the Croydon Area Health Authority.

(ii) Referrals, with consent, of the same information from large London-based companies of mothers-to-be taking statutory Maternity Leave.

(iii) Personal introduction, from subjects recruited by either of the above methods.

(iv) Direct recruitment from the Maternity Wards of two hospitals in the Croydon Area, by kind permission of the Consultant in Obstetrics, of mothers who had just given birth to their first baby.

2.2 **Criteria for inclusion in the Pilot Sample:** The following criteria for inclusion were tentatively delineated in order to recruit an homogeneous sample:
2.3 **Allocation to Groups:** The sample was to be divided into groups of equal size on the basis of the mother's future employment intentions, defined as follows:

(i) **Non-working Group:** Mothers who stated at the initial contact that they had no intention of taking paid employment during the infant's first year of life.
(ii) **Part-time Working Group**: Mothers who stated at the initial contact that they intended to take paid employment on a part-time basis during the infant's first year of life.

The first five mothers who fulfilled the criteria for inclusion and fell into one of the two above employment categories, and who indicated their willingness to participate, were recruited. Thus the Pilot Sample comprised 10 mother-infant dyads equally divided into those intending to work part-time and those with no intention of working.

3. **Procedures for Data Collection - Phase I**

3.1 **Initial Contact**: Following referral to the author by one of the methods outlined in Section 2.1, mothers were contacted by telephone by the author. Having introduced herself, given her credentials and the source of referral, the author briefly described the research project and asked if the mother would be willing to participate. If the mother was willing to participate, details such as name, address, date of birth of the infant, sex and parity were verified, and the mother was questioned about her future employment intentions. If the basic criteria for inclusion in the pilot sample were met and the mother could be allocated to one of the two employment groups, an appointment was made within the fortnight following for the author to make the first home-visit. A brief description was given of the procedures to be carried out during the coming visit, and the mother was assured of the confidentiality of information. If the mother declined to participate, she was assured that no further contact would be made.
3.2 **Procedures for First Home-visit**: The following procedures were conducted, in the order given, during the course of the first home visit.

(i) **Pre-Employment Interview**: Each mother was interviewed by the author to elicit the information required for completion of the draft Pre-Employment Interview Schedule. The interview was loosely structured and took between 1½ and 3 hours to complete. For half the sample, responses were both tape-recorded and noted by hand, for the remaining half responses were noted by hand only, to see which was the better method. After the interview, mothers were given a 'Comments on Interview' Questionnaire to complete after the author's departure (see Appendix 1, Annex 6).

(ii) **Self-Report Questionnaires**: Following the interview, mothers were given the first batch of self-report questionnaires and asked to complete them in accordance with the written instructions for return to the author on the second home-visit. The batch comprised:

- Eysenck Personality Inventory, Form B
  
  *(EYSENCK & EYSENCK, 1963)*

- General Health Questionnaire, GHQ-28
  
  *(GOLDBERG, 1978)*
- Broussard Neonatal Perception Inventory
  (BROUSSARD & HARTNER, 1972)

- Attitudes towards a Dual Role for Women
  (DALRYMPLE, LOWE & NELSON, 1971)

These instruments are described in Chapter 11 and copies are included in Appendix 1.

(iii) **Appointment for second home-visit:** Before leaving, the author thanked the mother for her co-operation, gave her home telephone number to contact in case of difficulty, and made an appointment for the following week for the second home visit. A full description of the procedures to be carried out on the second home visit was given to the mother.

3.3 **Procedures for Second Home-visit:** During the second home visit, observation of mother-infant interaction and infant developmental assessments were made, procedures lasting between two-three hours. Immediately following the visit, the author completed rating scales of infant and maternal attributes, and infant behaviour as observed during the visit.

(i) **Observation of mother-infant interaction:** The visit had been timed to coincide with the beginning of the morning feed and
mothers were asked to proceed as normal with the feed and with routines following thereafter. The author sat in a position where she was able to observe the faces of both mother and infant and silently observed and recorded behaviour for the following hour. If the mother left the room with the infant, for example to change a nappy, the author followed as unobtrusively as possible. If the mother left the room alone, the author continued to observe the infant's behaviour in the absence of the mother and upon her return. The observational system used is described in Chapter 11 and appears as Annex 19 of Appendix 1.

(ii) Infant developmental assessment: The assessment was carried out in accordance with the instructions given in the Bayley Scales of Infant Development (BAYLEY, 1969), and using the official apparatus pertaining thereto (see Annex 20, Appendix 1). For assessment of the MDI, the infant was seated on the mother's lap, facing the table. The author sat adjacent, with the equipment out of sight until an item was required. For assessment of the PDI, the infant was placed on the floor adjacent to the mother. For both assessments, the mother was instructed to encourage the infant to perform the task and to ensure that the infant did not become upset.

(iii) Self-report questionnaires: At the end of the visit, mothers were asked to return Batch 1 questionnaires. They were then given Batch 2 self-report questionnaires and asked to complete them according to the written instructions and return them to
the author in the Freepost envelope provided. The second batch comprised:

- Infant Temperament Questionnaire  
  (CAREY & McDEVITT, 1977)

- Maternal Attitude Scale  
  (COHLER, WEISS & GRUNEBAUM, 1970)

- IPAT Anxiety Scale  
  (KRUG, SCHEIER & CATTELL, 1976)

- Self-Esteem Scale, Short Form  
  (ROSENBERG, 1965)

These instruments are described in Chapter 11 and copies are included in Appendix 1.

At the end of the visit, the mother was again thanked for her cooperation and reminded that she would be contacted by post at regular intervals for the next year, and would be visited again by the author when the infant was approximately 15 months old.

4. **Procedure for Inter-phase Contacts**: Each mother was sent a copy of the "Life-event Checklist" devised by the author at three-monthly intervals during the following year. Written instructions for completion were included, together with a FREEPOST envelope for
return of the questionnaire to the author. This instrument is described in detail in Chapter 11, and a copy is included as Annex 15 of Appendix 1.

5. Procedures for the Pilot Study - Phase II

Contact was renewed with mothers in the Pilot sample by telephone one year later and an appointment was made for the third and final home-visit. Two procedures were carried out at this time, as follows:

(i) **Post-Employment Interview Schedule:** Each mother was interviewed by the author to elicit the information required for completion of the draft Post-Employment Interview Schedule. The interview lasted about one hour and responses, which were essentially to update information given the previous year, were noted by hand.

(ii) **Socio-Emotional Development Questionnaire:** Each mother was questioned by the author for about another hour in order to learn about the infant's behaviour in given situations for completion of the Socio-Emotional Development Questionnaire. Responses were again noted by hand.

These instruments are described in Chapter 11 and included as Annexes 4 and 5 of Appendix 1.

At the end of the session, mothers were again thanked for their co-operation throughout the research project.
6. **Treatment of Data from the Pilot Study**

All measures and instruments used in the Pilot Study were scored in order to gain practice in the techniques, but were not submitted to detailed statistical analysis.
CHAPTER 10  MEASURES AND INSTRUMENTS

1.  Introduction

2.  Interview Schedules
   2.1  Subject Screening Questionnaire
   2.2  Subject Recruitment Telephone Interview
   2.3  Pre-Employment Interview Schedule
   2.4  Post-Employment Interview Schedule
   2.5  Socio-Emotional Development Questionnaire

3.  Self-Report Questionnaires
   3.1  Maternal Attitude Scale
   3.2  General Health Questionnaire
   3.3  Eysenck Personality Inventory
   3.4  IPAT Anxiety Scale
   3.5  Self-Esteem Scale
   3.6  Attitudes Towards a Dual Role for Women
   3.7  Broussard Neonatal Perception Inventory
   3.8  Infant Temperament Questionnaire
   3.9  Life Event Checklist.

4.  Rating Scales
   4.1  Infant Rating Scale
   4.2  Mother Rating Scale
   4.3  Infant Behaviour Record

5.  Observation of Mother-Infant Interaction

6.  Objective Tests
   Bayley Scales of Mental and Psycho-Motor Development
BAUMRIND (1973) and LYTTON (1971) have reviewed methods of studying parent-child relationships and concur that in order to achieve the most accurate picture of such a complex relationship, several methodological approaches should be used and the data compared. Reviewers of the literature on the effects of maternal employment also call for use of convergent measures (HOFFMAN, 1974; RICCUTTI, 1976; BELSKY and STEINBERG, 1978; RUTTER, 1981; BARTON and SCHWARZ, 1982).

Influenced by such arguments, a multi-method approach to data collection was used in the present study. Maternal and infant attributes were assessed by comparing and/or combining data from interviews, from self-report questionnaires, from rating scales and from direct observations. Ecological validity, as so cogently advocated by BRONFENBRENNER (1977) and BELSKY and STEINBERG (1978), was, throughout, an over-riding concern.

Because of the heavy commitment to field-work (in excess of 200 home-visits), instruments that are standardized and/or widely published were used whenever possible. In the following sections, measures and instruments used in the study will be discussed as a function of the following data-collection techniques:

(1) Interview data
(2) Self-report Questionnaire data
(3) Rating Scales
(4) Observational data
(5) Objective tests.
Table 1  Instruments used in the study

(copies in Appendix 1, Annexes 1-20)

(1)  **Interview Schedules**

(i)  Subject Screening Questionnaire  Annex 1
(ii) Subject Recruitment Telephone Interview  Annex 2
(iii) Pre-Employment Interview Schedule  Annex 3
(iv)  Post-Employment Interview Schedule  Annex 4
(v)   Socio-Emotional Development Questionnaire  Annex 5

(2)  **Self-Report Questionnaires**

(i)  Comments on Pre-Employment Interview  Annex 6
(ii) Maternal Attitude Scale  Annex 7
(iii) General health Questionnaire  Annex 8
(iv)  Eysenck Personality Inventory  Annex 9
(v)   IPAT Anxiety Scale  Annex 10
(vi)  Self-Esteem Scale  Annex 11
(vii) Attitudes towards a Dual Role for Women  Annex 12
(viii) Broussard Neonatal Perception Inventory  Annex 13
(ix)  Infant Temperament Questionnaire  Annex 14
(x)   Life Event Checklist  Annex 15

(3)  **Rating Scales**

(i)  Infant Rating Scale  Annex 16
(ii) Mother Rating Scale  Annex 17
(iii) Infant Behaviour Record  Annex 18
(4) **Observation**

Observation of Mother-Infant Interaction  
Annex 19

(5) **Objective Tests**

Bayley Scales of Mental and Psycho-Motor Development  
Annex 20

Table (1) lists the instruments used in the study and copies of instruments are included in Appendix 1 (Annexes 1-20).
2. Interview Schedules

2.1 Subject Screening Questionnaire

A short structured questionnaire was designed to collect the following information from the mother in the Maternity Ward when the infant was aged 0-6 days.

- Infant's date of birth
- Infant's sex
- Infant's name
- Parity
- Marital status of mother
- Mother's occupation prior to childbirth
- Father's occupation
- Mother's future employment intentions
- Age of infant when mother intends to resume employment
- Intended child-care arrangements
- Mother's address
- Telephone number

2.2 Subject Recruitment Telephone Interview

This telephone interview was designed to follow-up mothers contacted in the Maternity Wards. It comprises a written overview of the research project, to be read to the mother and an assurance of confidentiality of identity and information. It concludes by asking the mother if she would be interested in participating in the project and, if so, verifying the information obtained in the Maternity Ward.
2.3 **Pre-Employment Interview Schedule**

The Pre-Employment Interview Schedule is a semi-structured schedule devised by the author. It comprises 170 questions on the following topics:

- Biographical data
- Family employment in mother's childhood
- Separation experiences in mother's childhood
- Mother's education
- Father's education
- Father's employment
- Mother's employment aspirations and employment history
- Marriage
- Marriage and employment
- Mother's general health while working
- Mother's emotional health while working
- Mother's rating of personality before pregnancy
- Pregnancy
- General health in pregnancy
- Emotional health in pregnancy
- Personality in pregnancy
- Attitudes to working during pregnancy
- Childbirth and peri-natal period
- Emotional reaction to neo-nate
- Current infant routines
- Current state of maternal health
- Current state of mother's emotional health
- Current personality rating by mother
- Current attitudes to employment
- Current attitudes to non-maternal care
- Future employment intentions
- Maternal satisfaction
- Areas of difficulty with child development, health and behaviour

Selection of topics for inclusion was informed by the review of the literature. The objective of the interview was to gather data on a variety of issues at a time when the experiences of the mothers were as homogeneous as possible, in order to assess, with a reasonable degree of confidence, what differences existed between the two groups of mothers before the onset of maternal employment.

The final version of the schedule incorporated a number of changes from the format used in the Pilot Study. The original schedule comprised 147 loosely-structured questions covering the above topics, consequently for those mothers with a discursive style of communication, the interview lasted up to three hours. Additional questions were therefore inserted to access required information more directly and to resolve ambiguities arising, for example, through collapsing a number of questions. Mothers in the Pilot Sample were asked to comment on the schedule and indicated that none of the questions were considered embarrassing or offensive.

A scoring key was developed and piloted with the schedule. Reliability of scoring was assessed by having two independent raters complete the schedule from a sub-sample of three tape-recordings of
interviews in accordance with the scoring key. The coefficients of reliability were calculated and ranged from .93 to 1.00.

2.4 Post-Employment Interview Schedule

The Post-Employment Interview Schedule was devised by the author to update the data records of the mothers at 15 months post-partum. The schedule comprises 52 items covering:

- Employment history of mother since the birth
- Feelings about work
- Feelings about motherhood
- Mother's health
- Child's health
- Child management
- Marital relationship
- Child care arrangements for working mothers
- Maternal satisfaction

The schedule utilizes a variety of techniques to elicit the required information, including rating scales, forced-choice sets and open-ended questions. Piloting of the schedule, served to clarify ambiguities in wording and to ensure that mothers could understand what information was required. A scoring key was developed similar to that for the Pre-Employment Interview Schedule.

Reliability of scoring using the key was again in excess of .9 for two independent raters scoring a sub-sample of three schedules.
2.5 Socio-Emotional Development Questionnaire (SEDQ)

The Socio-Emotional Development Questionnaire (SEDQ) was developed by the author in the perceived absence of a suitable available instrument for the assessment of socio-emotional development in children aged less than two years. Given a choice between measuring the child's temperament, as evidenced by his behaviour, and the parent's view of the child, the intention in the SEDQ was to maximize child-measurement and minimize the influence of parental attitude by formulating items in terms of the child's actual behaviour in concrete situations, as advocated by CAREY (1972).

Secondly, in the absence of any generally accepted definitions of "socio-emotional development" at this age, or of what constitutes 'normal' as opposed to 'abnormal', 'good', as opposed to 'bad' development, various dimensions of such development, based on the review of the literature, were brought together into one instrument. These dimensions are social competence, emotionality and emotional security.

"Social Competence" subsumes facets of behaviour that might be termed "sociability" and "social participation" and is here defined as the ability to interact with others in a social situation in a manner commonly regarded as acceptable, desirable and attractive. Thus the ability to play with peers would be considered indicative of social competence, the inability to do so as indicative of social incompetence.
"Emotionality" subsumes facets of behaviour that might be termed "emotional expression", "self-punitive, fearful or extreme behaviours", and "empathy". Emotionality is here defined as the ability to express a range of behaviour, commensurate in intensity with situational demands, in a manner commonly regarded as acceptable, desirable and attractive. Thus the ability to empathize with others would be regarded as adaptive behaviour, as would crying when hurt or frustrated, but an inability to emphasize or self-directed punitive behaviour such as head-banging when hurt or frustrated, would be regarded as non-adaptive behaviour.

"Emotional security" subsumes behaviour usually associated with the development of secure attachments to the mother figure and to others. Behaviour in response to encountering strangers, strange situations, being briefly separated from the mother, tolerance of departures from daily routines and independence are here included as indicators of emotional security. Thus emotional security is defined as the ability to tolerate encounters with strangers, brief separations from the mother, or departures from daily routines, without undue anxiety, in a manner commonly regarded as acceptable, desirable and attractive. The ability to be left briefly without undue upset with a familiar babysitter would therefore, be indicative of emotional security, whereas acute distress would be regarded as indicative of emotional insecurity.

**Construction of the Socio-Emotional Development Questionnaire**

Having decided upon the general dimensions of behaviour to be included in the questionnaire, the author's next step was to clarify the 'actors', 'situations' and 'behaviours' involved.
'Actors', it was decided, should include a variety of 'others' encountered by the target child in everyday situations, interaction with whom would give an insight into socio-emotional development.

Thus the list of potential actors included the mother; other relations; adult strangers; younger, older and peer children both known and strange to the target child; and familiar and unfamiliar domestic pets.

A range of 'situations' was devised, to include normal, everyday routines in the home; expeditions outside the home; initiating and maintaining social contacts with intimates and strangers; being left alone; being left with intimates and strangers; and being reunited with the mother.

In devising a taxonomy of 'behaviours', the emphasis was placed on identifying 'areas of difficulty'. This emphasis was made following discussions with Dr Naomi Richman at Great Ormond Street Hospital, who has herself devised behavioural screening questionnaires for use with older children. The range of 'behaviours' includes expressions of both adaptive and non-adaptive emotion; adaptive and non-adaptive social behaviours; self-directed non-adaptive behaviours; fears and fearful behaviours; and adaptive and non-adaptive behaviours towards objects. These categories were then expanded to give actual behavioural definitions, as follows:

(a) **Emotional : Adaptive**

   Smiling, laughing, physical contact
Non-adaptive crying, clinging, temper tantrums, screaming, hitting, aversion to physical contact.

(b) Social \hspace{1cm} Adaptive

Approaching, offering/ showing, smiling, vocalizing, eye-contact, physical contact.

: Non-adaptive

Withdrawal, passivity, hitting, biting, aversion to eye or physical contact.

(c) Self-directed Non-adaptive behaviours

Thumb-sucking, nail-biting, masturbating, picking/scratching, head-banging, rocking.

(d) Fears and fearful behaviours

Fears of people, places, objects, arrivals, situations, fear of dark, being left alone.

(e) Non-adaptive behaviours towards objects

Sucking, clutching, destructive behaviours.
Using the above taxonomies of 'actors', 'situations' and 'behaviours', an item pool of 110 items was drawn up. Formulation of test items was guided by the review of studies in Chapters 5 and 6, by 'borrowing' items, where appropriate, from existing scales measuring aspects of socio-emotional development; some items were derived from theoretical or normative accounts of infant development; some items were based on the author's experience in working with multiply handicapped and emotionally mal-adjusted children.

A draft schedule of 100 items was randomized and administered to the Pilot sample in order to clarify ambiguities and remove non-differentiating items. This resulted in a final schedule of 89 items, (see Appendix 1, Annex 5). As a result of piloting, it was decided to group, rather than randomize items to facilitate the flow of the interview, and to add open-ended questions to the mother, guided by probes, about the frequency and nature of the child's social contacts, and the frequency, severity and level of advice sought on any areas of difficulty perceived by the mother.

Scoring of the Questionnaire: The questionnaire is scored according to the frequency of occurrence of a given behaviour as reported by the mother. Details of scoring are included with the schedule in Appendix 2.

Reliability and validity of the Questionnaire: No psychometric properties are claimed for the questionnaire, given the sample size in the present study. Correlations with other standardized measures may however serve as initial indicators of validity and reliability. Reliability of scoring, using two independent raters was .9.
3. **Self-Report Questionnaires**

A number of standardized and/or widely published self-report questionnaires were employed to provide convergent data on the variables under investigation.

3.1 **The Maternal Attitude Scale**

The Maternal Attitude Scale was developed by COHLER, WEISS and GRUNEBAUM (1970) for use with mothers of infants and very young children. It is based on the theory of the mother-child relationship developed by SANDER (1962, 1964, 1966) in which it is proposed that a number of discrete issues have to be negotiated between mother and child during the early years of a child's life.

The instrument comprises 233 Likert-type scale items which yield five second-order orthogonal or independent summary factors:

- **Factor I**: Appropriate control of the child's aggressive impulses.
- **Factor II**: Encouragement vs discouragement of reciprocity
- **Factor III**: Appropriate vs Inappropriate closeness
- **Factor IV**: Acceptance vs Denial of emotional complexity in child-rearing.
- **Factor V**: Comfort vs discomfort in perceiving and meeting the baby's (physical) needs.
A full description of the issue scales and factors is given in Annex 7 of Appendix 1. According to the Manual, women with adaptive attitudes will score low on Factors I and II and high on Factors III, IV and V.

**Reliability and Validity:** The scales and factors are derived from factor-analytic procedures. The authors report high internal consistency of the five second-order factors, scales constructed on the basis of items with the highest loadings showing alpha coefficients ranging from .81 to .96. Test-retest reliability coefficients over a one-month period range from .62 to .78. Validity of the factors has been demonstrated in a variety of studies, primarily concerned with contrasting mentally-ill mothers of young children with non-hospitalized mothers (COHLER et al, 1974a; 1974b; 1980). Principal components analysis showed that the five factors together accounted for 79% of the variance, the last factor accounting for less than 10% of the communality.

### 3.2 The General Health Questionnaire (GHQ)

The General Health Questionnaire (GHQ) was devised by GOLDBERG (1972, 1978) as a self-administered screening test for detecting diagnosable non-psychotic psychiatric disorder. In the present study, the 28 question version of the GHQ was used, with the Likert method of scoring. A full description of the questionnaire is given in Annex 8 of Appendix 1.
Reliability and Validity of the GHQ: GOLDBERG (1978) reports test-retest reliability coefficients with a 6-month interval ranging from .51 to .90. Split-half reliability was shown to be 0.95. Studies comparing the GHQ-60 with independent clinical assessments using the Present State Examination (PSE) developed for community use by WING (1976) produced correlations ranging from +.76 to +.81.

3.3 Eysenck Personality Inventory (EPI)

The Eysenck Personality Inventory was developed by EYSENCK and EYSENCK (1964) to provide independent measurement of the personality dimensions Neuroticism or Stability-Instability (N) and Extraversion-Introversion (E), together with a 'Lie' scale (L) to measure dissimulation. A full description of the Inventory is given in Annex 9 of Appendix 1.

Reliability of the Scales: Test-retest reliabilities over a one-month period for different occupational groups and sexes are high, mostly lying in the .80 to .90 region. With the effect of age and sex removed, EYSENCK reports test-retest reliabilities of .89 for E, .86 for N, and .84 for L. Internal consistency reliability studies yield alpha coefficients of .85, .84, .81 for E, N, and L respectively in normal male populations and of .84, .85, and .79 for normal female populations.

Standardization: Age norms are available for each scale for populations of normal and abnormal males and females. For E, men become more introverted with age than women; for N, both men and women decline in neuroticism with age. No significant trends are found as a function of social class.
Alternative Forms of the EPI: Two forms of the EPI are available for repeated testing of the same population. In the present study Form B was used.

3.4 The IPAT Anxiety Scale Questionnaire (ASQ)

The Anxiety Scale Questionnaire was developed by CATTELL and SCHEIER (1961b) as a means of obtaining clinical anxiety information in a 'rapid, objective and standard manner'. The scale purports to give an accurate appraisal of free or 'floating' anxiety, facilitating screening operations where very little diagnostic or assessment time can be spent with each subject. A full description of the scale is given in Annex 10 of Appendix 1.

Reliability and Validity

Test-retest reliabilities range from .93 after one week, .82 after 4 weeks, to .70 over two years. Thus, while appreciable changes can occur in a person's anxiety level, there is still a strong tendency for individuals to maintain their relative positions.

Split-half reliabilities, for internal consistency, range from .78 to .92 on different cultural samples. Reliability of the overt and covert part scores are in the order of .8, with overt:covert ratio reliability reported as .77 after one week. For internal consistency of part scores, covert and overt coefficients are reported as .62 and .77 respectively.
Validity of the ASQ has been established by correlating scale scores with clinical ratings of anxiety, and range from .95 for thyrotoxic patients, .73 for anxiety state patients, to .17 for anxiety neurotics. Correlations with other questionnaire measures of anxiety average .70. The authors claim that the combined evidence from factor-analytic investigations, clinical assessments and other questionnaire measures of anxiety converge to the conclusion that the validity of the ASQ approaches .90.

**Age trends in anxiety levels**

Normative data suggest that the same form of age trend in anxiety is a U-shaped curve, typically very high levels of anxiety occurring in adolescence, generally declining throughout adulthood and increasing again after the age of 60.

3.5 **Self Esteem Scale** (ROSENBERG, 1965).

This scale comprises ten items to be responded to on a 4-point Guttman scale from "strongly agree" to "strongly disagree". Positive and negative statements are presented alternately in order to reduce the danger of respondent set, "positive" responses indicating low self-esteem.

**Example**

Item 5  "I feel I do not have much to be proud of"

Item 6  "I take a positive attitude towards myself"
**Scoring:** For positive items, the direction of scoring is Strongly Agree = 0, Agree = 1, Disagree = 2, Strongly Disagree = 3. For negative items scoring is in the reverse order. Scores are summated to give a total score ranging from 0 to 30.

**Reproducibility and Scalability:** ROSENBERG claims that reproducibility of the scale is 93%, scalability (items) is 73% and scalability (individuals) is 72%.

3.6 **Attitudes towards a Dual Role for Women (DALRYMPLE et al., 1971)**

This instrument comprises 25 statements with which the respondent indicates his strength of agreement using a 5-point Guttman scale ranging from "Strongly agree" to "Strongly disagree". The overall scale may be sub-divided into four dimensions -

**Dimension I** - Effect of mother’s working on children
- Items 1, 7, 12, 19, 21 (20%)

**Dimension II** - Money contribution of working wife
- Items 4, 5, 8, 15, 22 (20%)

**Dimension III** - Home and relationship maintenance
- Items 2, 3, 6, 9, 11, 16, 20, 23, 25 (36%)

**Dimension IV** - Implications for society
- Items 10, 13, 14, 17, 18, 24 (24%)

Just under half of the items are formulated in a negative direction and are interspersed with positive items in order to avoid effects of response set.
Validity of the instrument was assessed on four samples ranging from 134 to 162 respondents. The reported t-values for all 25 items exceed 1.75 (the cut-off point for 'useful' items - EDWARDS 1957), ranging from 3.9 to 17.5 on pre-test.

3.7 The Broussard Neonatal Perception Inventory
(BROUSSARD and HARTNER, 1970)

The Broussard Neonatal Perception Inventory is designed to gain mothers' perceptions of their new-born infants as compared with their perceptions of the 'average' infant. It is designed for infants aged up to three months of age and comprises six questions concerning the mothers' perception of the average baby's crying, vomiting and difficulty with sleeping, bowel movements and settling into a routine. Six further questions seek the same information about the mother's own baby. This instrument was only used in the Pilot Study as it was considered to be of very limited value compared with the Infant Temperament Questionnaire, piloted alongside it, and which replaced it in the main study.

3.8 Infant Temperament Questionnaire
(CAREY and McDEVITT, 1977)

The Infant Temperament Questionnaire (ITQ), devised by CAREY (1970) and revised by CAREY and McDEVITT (1977), is based on the nine categories of infant temperament made by THOMAS et al (1963), as described in Chapter 6 (Section 2.3) above. Maternal responses are used to group infants into the diagnostic clusters of Difficult,
Easy, Slow-to-warm-up and Intermediate. The questionnaire is described in detail in Appendix 1 (Annex 14).

**Reliability and Consistency.** The Infant Temperament Questionnaire in its revised form was standardized using a sample of 203 infants aged 4 to 8 months, comprising 104 boys and 99 girls, representing all social classes but with a predominance of middle to upper-middle social class. Test-retest reliability over a mean interval of 25.1 days is reported as .86 and internal consistency as .83.

3.9 **Life Event Checklist**

A 'Life Event' Checklist (LEC) was devised by the author for administration to subjects at 3-monthly intervals during the inter-phase, a period of one year between the contacts with a given subject for Phase I and that of Phase II. The aims of the LEC were two-fold:

(a) To reduce the possibility of sample attrition due to lack of contact during the one-year inter-phase period.

(b) To update the data-base at regular intervals during this period.

The objectives of the LEC were to gather information on major changes (life-events) occurring in the subjects' life at fixed intervals during the inter-phase period. The rationale underlying this objective was that such changes might affect the stability of family life, the emotional stability of the mother, her decision as to whether or not to seek/return to paid employment outside the home, and, either directly or indirectly, the socio-emotional development of the infant.
The theoretical model underpinning development and administration of the LEC was that of BROWN and HARRIS (1978) on the relationship between life-events and depression in women, life events acting as provoking agents as a function of women's perceptions and emotional reactions to such changes in their lives. In the present study, the LEC was not devised as a diagnostic instrument for depression, but rather as a monitor of change resulting in a frequency count of changes in the subject's life. No prior assumptions were made about the probability of associations with later events, the function of the LEC was to document such changes as, or soon after, they occurred, rather than gathering such information retrospectively during Phase II when the effect of immediacy as an aide-memoire might have diminished.

**Life events**

According to BROWN and HARRIS (1978) a life-event does not necessarily involve negative experience, nor is it necessarily followed by emotional arousal. The key concept in life events is CHANGE, and the meaning of such change to an individual is more important than change as such. In their list of life-events, items are included which can be dated to a particular point in time, and which would, for most people, probably be followed by strong negative or positive emotion. Such events involve the subject, members of the subject's household, close relatives or confidants. In addition, at times particularly dramatic incidents involving more distant relatives or even strangers were included as long as the subject had been present
BROWN and HARRIS list thirty-eight types of event, falling into the following eight groups:

(i) Changes in a role for the subject such as changing a job.
(ii) Changes in role for close relatives or household members.
(iii) Major changes in health
(iv) Similar changes for relatives or household members.
(v) Residence changes and any marked change in amount of contact with close relatives or household members.
(vi) Forecasts of change.
(vii) Valued goal fulfilments or disappointments.
(viii) Other dramatic events involving the subject, a close relative or a household member.

"In every instance the events can be seen as involving CHANGE in an activity, role, person, or idea" (ibid).

In order to control possible contamination stemming from both subject and experimenter, in measurement as well as in definition, REACTIONS to the event are excluded, since the significance of events clearly differs from individual to individual. What is established is whether certain events have occurred, irrespective of how subject or experimenter 'felt' about them. Before discussing the meaning of events, it is appropriate at this point to describe the 'life event checklist' devised for the present study.
Development of the LEC

Guided by the BROWN and HARRIS approach to life events, a list of principal 'actors' was compiled, comprising the mother, infant, the infant's father and close relatives. A list of life-event 'arenas' germane to the present study was then compiled and questions devised to access information about events occurring within such arenas and involving the principal actors. Nine arenas of interest were thus defined:

I  Infant Development  
II Infant Health  
III Infant Behaviour  
IV Mother's Health  
V  Mother's Emotional State  
VI  The Marital Relationship  
VII Other Relationships  
VIII Major Changes - to include husband's employment, mother's employment, moving house, becoming pregnant again.  
IX  Family Crises, to include bereavement, accidents to principal actors, burglary/theft, witnessing disturbing events, contact with police or court appearances.

Where arenas concerned health or 'problems' identified by the subject, supplementary questions asked for more details and information as to the level of advice sought by the mother. For example, concerning Infant Health, the format of the item is as follows:-
Apart from colds, teething or feeding difficulties, has your baby had any health problems in the past month?

YES/NO

If YES, please specify ________________________________

______________________________

______________________________

If you sought advice, please indicate at what level:

None (   ), Friends/Relatives (   ), Clinic (   ), GP (   ), Hospital out-patient (   ), Hospital in-patient (   ).

Other, please specify ________________________________

In this way it was possible to distinguish between responses such as "YES, sickness and diarrhoea", meaning that a baby had experienced a mild stomach upset from the more serious cases where the baby was hospitalized as an emergency for gastro-enteritis.

Where arenas concerned changes pertinent to the conduct of the study further information was elicited in order to update the database. For example, concerning the mother's employment, the format of the item is as follows:

Example 1

Have you taken up employment yourself? YES/NO

If YES, please state: Date of commencement ________________

Hours per day ________________
Days per week _______________________
Job description ____________________
Who looks after baby __________________
Where baby is looked after ____________

Example 2
Have you, or are you, contemplating moving house? YES/NO
If YES, please give: Date of moving _______________________
New address _________________________
Telephone no. _______________________

Items such as those described above demonstrate how the objective of reducing sample attrition could be achieved by means of inter-phase contacts updating information as to location and status of the subject. The full schedule is included as Annex 15 of Appendix 1.

Scoring, Coding and Interpretation of the LEC

As previously indicated, occurrence of an event was the basic unit of information to be obtained. Presence or absence of an event was therefore scored 1 : Present, 0 : Absent. Severity of an event irrespective of its meaning to the subject, was scored where appropriate in accordance with the level of advice sought. Thus, in the example related to Infant Health, stomach upset was coded (1) for minor, if the level of advice sought was None, Friends/Relatives, or GP, it was coded (2) for major, if the level of advice was hospital in- or out-patient.
For items where level of advice sought could not be used, a common-
sense approach was used to classify information. For example, where
a husband had recently changed his job, the event was categorized
according to whether:

(a) He had previously been employed and had now lost his job.

(b) He had previously been unemployed and had now found a job.

(c) He had previously been employed and had now improved his
   job.

To classify items such as Mother's Emotional State or Marital
Difficulties, the number of indicators of disturbance was recorded.

In accordance with the practice of BROWN and HARRIS (1978),
unrelated 'events' were summated to give a total of 'life events' for
each subject.

Reliability of the LEC: The instrument was tested on the pilot
sample and, with some minor amendments, found satisfactory for its
intended purpose. Reliability, using two independent scorers, was in
excess of .9 for a sub-sample of three schedules.

4. Rating Scales

Three scales were used to rate infant and maternal attributes:
(i) Infant Rating Scale  
(ii) Mother Rating Scale  
(iii) Infant Behaviour Record

Two of the scales, (i) and (ii) were based on scales devised by BAKEMAN and BROWN (1980) to rate mothers and infants on a variety of items, following observations of mother-infant interaction.

From the rating scale items, an index is formed of the responsiveness of the mother and infant. Each index is the mean of seven items designed to tap aspects of the mother's and infant's responsiveness in the feeding situation.

4.1 Infant Rating Scale

The scale comprises nine 6-point scales to rate the infant on the following dimensions:

- Attractiveness of the Infant
- How easily satisfied the infant is
- Responsivity of the infant to the mother
- Responsivity of the infant to others, including the observer
- Responsivity of the infant to the environment (inanimate objects)
- Happiness of the infant
- Cues given by the infant to the mother
- Infant's activity level
- Smoothness of the infant's activity.
4.2 **Mother Rating Scale**

The Mother Rating Scale comprises nine 6-point scales to rate the mother on the following dimensions:

- Tenseness of the mother
- Responsivity to infant cues
- Interest in the infant
- Amount of talking to the infant
- Tone of mother's voice to the infant
- Quality of mother's handling of the infant
- Appropriateness of mother's behaviour
- Closeness to mother's body when holding infant
- Amount of positive emotion expressed to infant.

Full descriptions of items on both scales are included with the scales in Appendix 1, Annexes 16-17. These descriptions serve to assist the observer in deciding how to rate the subject on a given item.

4.3 **Infant Behaviour Record**

In addition to the Infant Rating Scale described above, the author also rated infants using scales from the Infant Behaviour Record (IBR) of the Bayley Scales of Infant Development (1969).

"The IBR consists of a number of descriptive ratings for behaviours characteristic of children up to 30 months of age. These scales focus on many areas of behaviour, including the child's interpersonal
and affective domains (social orientation, general emotional tone, fearfulness), motivational variables (goal directedness, attention span, endurance), and the child's interest in specific modes of sensory experience. In addition, the IBR provides a convenient form for recording qualitative observations and evaluations which may be of clinical significance ..." (BAYLEY, 1969, p.99). Distributions of ratings obtained on the IBR are available for each of the age groups in the standardization sample. In addition, descriptive paragraphs provide general characterizations of behaviours to be expected at different ages in the testing situation.

Four scales were derived from the IBR in the following manner:

(a) The three scales of social orientation were combined to give a composite rating of social orientation.

(b) The scales of co-operativeness, fearfulness and happiness were combined to give a composite rating of General Emotional Tone.

(c) The scales of goal-directedness, attention and endurance were combined to give a composite rating of Motivation.

(d) The scales of object orientation, bodily movement, reactivity and areas of sensory interest were combined to give a composite rating of Activity.
Reliability of Ratings

To assess reliability of ratings, two independent raters (including the author) completed ratings on three infants unconnected with either the pilot study or the main study. Inter-rater correlations ranged from .5 to .904, with an average coefficient of .7.

5. Observational Data

Each mother-infant dyad was observed by the author in naturally occurring situations in the home environment. The system of observation was devised by E.C. MELHUISH and B. MELDRUM (1983) of the Thomas Coram Research Unit. Essentially the system was devised by reviewing observational techniques in current use, and by borrowing liberally, developing a technique particularly appropriate both for the situation in which interaction was observed and for the age-range of the infants.

The system focuses on observation of molar behaviours occurring spontaneously between the two principals, mother and baby, and seeks to describe the interaction in terms of meaningful 'chunks' of behaviour, rather than in the micro-analytic form adopted by many observational systems. For example, the infant may be "playing with a toy", a molar description subsuming lower orders of description such as looking, opening hand, rotating wrist, extending hand, closing fingers etc.
The system uses a simple 'grammar' of subjects (people) objects, verbs (actions) and qualifiers. A vocabulary exists for each grammatical part and is abbreviated to form a short-hand 'language' that can be handwritten by the observer. For example:

Mother = M
Infant = I
Toy = Y
Gives = G
Looks = L

Mother gives toy to infant = MGY
Infant looks at mother = ILM

Gramatically inaccurate sequences, eg. YLI, are not permitted, each 'sentence' or behavioural chunk must have a subject, verb and object, and may have a qualifier. The full 'vocabulary' is set out in Appendix 1, Annex 19.

Using this short-hand system, the trained observer is able to observe and simultaneously record behavioural chunks occurring in ten-second time intervals which are transmitted to the observer through the earphones of an electronic 'bleeper'.

After training by E.C. MELHUISH in use of the system, reliability was assessed by having the writer and E.C. MELHUISH share the earpieces of the electronic 'bleeper' to simultaneously record mother-infant interaction in three dyads unconnected with either the pilot study or the main study. Percentage concordance ranged from 88.39% to 91.3%, averaging 89.49%.
A computer program was written at the Thomas Coram Research Unit to analyse the data obtained by this system in terms of frequency counts, time duration and contingencies (direction of interaction).

6. **Objective Tests of Infant Development**

The Bayley Scales of Infant Development (BAYLEY 1969) was the instrument used to assess infant development. The Scales are designed to evaluate a child's developmental status in the first 2½ years of life. Three complementary scales are available, a Mental Scale (MDI) a Motor Scale (PDI) and a Behaviour Record (described in Section 4.3 above).

For the present study a total of 51 items, with age-value placements ranging from 2.8 months to 8.9 months, were administered to compute the MDI. For the PDI, 30 items, with age-value placements ranging from 2.1 months to 8.9 months were administered. The scales are described in detail in Annex 20 of Appendix 1.

**Reliability of the BSID**

Split-half reliability coefficients for the MDI range from .81 to .93, with a median value of .88. Reliability coefficients for the PDI range from .68 to .92 with a median value of .84. Tester-observer reliability is reported as 89.4 percentage concordance for the MDI and 93.4% for the PDI. Test-retest reliability is reported as 76.4% concordance for the MDI and 75.3% for the PDI.
In order to assess reliability of administration of the Bayley Scales, the author and another observer completed the scales for three infants unconnected with either the Pilot study or the main study. Percentage concordance ranged from 86.27% to 98.04% averaging 92.65%.
CHAPTER 11  THE MAIN STUDY

1. Objectives of the Study

2. The Sample
   2.1 Sample Recruitment
   2.2 Criteria for Inclusion
   2.3 Allocation to Groups

3. Procedures for Phase I
   3.1 Introduction
   3.2 Sampling procedures
   3.3 Data collection procedures

4. Inter-phase Contacts

5. Procedures for Phase II
1. **Objectives of the Study**

The main study was planned in accordance with the experimental design and modified to take account of lessons learned or difficulties encountered in the Pilot Study. The fieldwork was conducted in two phases, the first phase being concerned with data collection in order to establish whether any differences existed between two groups of mothers, one group proposing to return to part-time employment during the infant's first year of life, the other group having no intention of seeking employment. The scheduling of procedures was such that at the point of contact, all mothers were at home full-time with their babies. The second phase was conducted a year later when the infants were aged fifteen months, and sought to establish whether there were any differences associated with the socio-emotional development of the infants, or with the role satisfaction of the mother, which might be attributable to the employment status of the mother.

2. **The Sample**

The sample comprised a total of 60 mother-infant dyads, divided into two groups of 30 on the basis of the mother's future employment intentions. One group, designated the non-working (NW) group, had no intention, at the time of the infant's birth, of returning to work during the infant's first year of life; the other group, designated the part-time working (PT) group, stated at the time of the infant's
birth that they intended to seek part-time employment during the infant's first year of life. Prior to the birth of the infant, all mothers had been in full-time employment, and for each, this was their first child.

2.1 Sample Recruitment

The sample for the Main Study was recruited from two adjacent South London Area Health Authorities, namely Croydon and Merton. Recruitment was by two methods:-

(a) Direct Recruitment: It was decided that sample recruitment for the main study should continue to take advantage of the ongoing system of recruitment for another study being conducted in the Research Unit to which the author was attached. This system was being used to recruit mothers who intended to work full-time, consequently mothers intending to work part-time were being identified and discarded. Consequently details of such mothers identified in the Maternity Wards of Mayday Hospital and St Mary's Hospital, Croydon, were referred to the author to be screened for inclusion in the present study.

In addition, the author herself recruited directly from the Maternity Wards of St Helier Hospital, Carshalton, in the adjacent Merton and Sutton Area Health Authority. Having obtained permission from the Consultant in Obstetrics, the author accordingly visited the wards weekly in order to conduct
the initial screening interview. Any mothers who intended to work full-time were referred, on a reciprocal basis, to the Unit Research Team. As a result of difficulties encountered in the scheduling of procedures for the Pilot Study, recruitment was continuous throughout a six-month period, running simultaneously with data-collection procedures for mothers recruited earlier, so that all procedures could be carried out by the author when the infants were the same age.

(b) **Referral from Health Visitors** The Health Visitor referral scheme used in the Pilot Study in the Croydon Area was continued and extended to the Merton and Sutton Area. Health Visitors were accordingly briefed as to the criteria for sample recruitment, and kindly agreed to refer to the author, with maternal consent, details of mothers meeting the selection criteria, who had recently given birth elsewhere than at the main Area maternity facility. In the event, only 5 referrals were received from this source.

### 2.2 Criteria for Inclusion

The basic criteria for recruitment to the sample were as follows:

(a) **Mothers**

(i) **Ethnicity**: Caucasian

(ii) **Country of Origin**: United Kingdom

(iii) **Parity**: Primiparous
Marital Status: Married, or living in a stable relationship with the infant's father.

A further criterion of social class was abandoned as a result of difficulties encountered in the Pilot Study, in favour of a 'matching' procedure described in Section 2.3 below.

Infants

Status: First-born singletons

Gestation: Full-term, not less than 38 weeks

Physical condition: No obvious birth or congenital defects.

The age criterion used in the Pilot Study was abandoned in favour of continuous recruitment so that all infants were the same month of age when the various procedures were carried out. This was to reduce the initial disparity encountered in developmental level, and to maximize the homogeneity of mother-infant experience.

2.3. Allocation to Groups

Mother-infant dyads fulfilling the above criteria formed the subject pool from which allocation to groups was made at 10-12 weeks post-partum. Allocation to groups was made on the basis of the mother's future employment intentions, as stated at 0-6 days post-partum. The two groups were comprised of those:
(a) who had no intention of working during the infant's first year of life.

(b) who intended to work part-time during the infant's first year of life.

The definition of 'part-time employment' was amended following the Pilot Study, to read "paid employment outside the home for at least 8 and not exceeding 25 hours per week, with alternative arrangements being made for the care of the infant during the period of employment".

In this way, mothers intending to work at home, or to take their babies to work with them, were excluded, as were mothers intending to work for one or two sessions per week. The latter, it was felt, rendered the situation too similar to that of non-working mothers using a baby-sitter for occasional outings.

The subject pool for the part-time working group comprised all 33 mothers who had stated their intention of returning to work during the infant's first year of life. Of these, 30 mothers consented to participate in the study and are subsequently referred to as the "part-time group".

A total of 60 mothers formed the subject pool for the group whose intention was not to take employment during the infant's first year of life. For each "part-time group" subject recruited into the sample, every effort was made to locate and recruit a "non-returner" who matched the part-time working subject in terms of:
(a) **Social Class**, as adjudged by the father's occupation, using the Registrar General's Classification of Occupations (1960).

(b) **Sex of infant**

The matching procedure was employed only to facilitate allocation to groups; subsequent treatment of the data did not utilize matched pairs analyses as matching was incomplete. Of 43 mothers contacted by the author, 30 agreed to participate in the study and are subsequently referred to as the "non-working group". Of the 13 refusals encountered, 10 gave as their reason "too busy", 3 as "not interested".

The final sample therefore comprised 60 mother-infant dyads. Every effort was made to make the sample as representative as was feasible, within the parameters of the defined population.

3. **Procedures for Phase I**

3.1 **Introduction**

In the following sections, the sampling and data collection procedures for the main study will be described in the chronological order in which they were carried out, unless otherwise indicated. A summary of all procedures is given in Table 2, with the age of the infant at the time the procedure was carried out.
Table (2) Summary of Procedures

1. **Piloting procedures for Phase I**

2. **Sampling procedures**

   (i) Maternity Ward Screening Interview - Infants aged 0-6 days
   (ii) Follow-up telephone contact - Infants aged 10-12 weeks.

3. **Data Collection for Phase I - Infants aged 12-18 weeks.**

   (i) Pre-employment Interview with mother
   (ii) Administration of Self-report Questionnaires, Batch 1.
   (iii) Observation of Mother-Infant Interaction
   (iv) Rating of Mother and Infant Attributes
   (v) Infant Developmental Assessment
   (vi) Administration of Self-report Questionnaires, Batch 2.

4. **Inter-phase Contacts with Mothers, Infants aged 4-15 months.**

   (i) Life-event questionnaire, repeated at 3 monthly intervals

5. **Piloting procedures, for Phase II**

6. **Data Collection for Phase II - Infants aged 15-16 months**

   (i) Post-employment Interview with Mother
   (ii) Administration of Infant Socio-emotional Development Questionnaire.
3.2 Sampling procedures

(i) Maternity Ward Screening Contact: Having established from hospital records that a mother fulfilled the basic criteria for inclusion in the sample, as described in Section 2.2 above, mothers were briefly interviewed in the Maternity Ward. The procedure began with the author introducing herself and giving her credentials. The mother was then told that the author had the hospital's permission to talk to mothers who had just given birth to their first babies. After enquiring as to the health of mother and baby, the mother was asked if she minded being asked a few questions (all mothers complied with this request). The Subject Screening Questionnaire, described in Chapter 11, Section 2.1 above was then administered to elicit the required information. Mothers were then given a very brief explanation for the approach and asked if they would mind being contacted again in about ten weeks time when they would be told more about the research, with a view to their participation.

(ii) Follow-up Telephone contact: Ten weeks after the initial interview, mothers who met the selection criteria were matched, as described in Section 2.3 above, and contacted by telephone. The author reminded mothers of the previous contact in hospital and asked how the baby was progressing. Permission was then asked to tell the mother
more about the research project, with a view to her participation. A prepared overview of the project was then read to the mother (a copy of the overview appears in Appendix 1, Annex 2).

The mother was then asked if she would be interested in participating; if she consented, the information obtained in the Maternity Ward was verified and updated, and an appointment made for the first home visit, to take place within the following fortnight. If a mother was not interested, she was thanked for listening and assured that she would not be contacted again.

3.3 Procedures for Phase I. Data Collection

Two home-visits were made for the purposes of data collection during Phase I. Having established that the mother and infant fulfilled the criteria for inclusion in the sample, and ascertained the mother's willingness to participate following the brief description of the study given at the 10-week telephone contact, the author made an appointment with the mother by telephone in order to conduct the first interview.

1. 1st Home Visit: On the first home-visit the author conducted the Pre-Employment Interview, gave the mother Batch 1 of the Self-report questionnaires to complete, and made an appointment for the 2nd home-visit.
Pre-employment Interview: The Pre-employment Interview, as described in Chapter 11, 2.3, has a semi-structured format of questions and answers in a conversational style. The mother was again assured that all information would be treated in strict confidence, and that her identity would only be known to the author. The mother was asked if she would mind if the interview was recorded, the recording only to be heard by the author, to avoid the formality of having her answers written down. Only one mother refused to have the interview recorded, on the grounds that she hated tape-recorders and would be unable to speak freely if she knew she was being recorded. The interviews lasted from 1 1/4 to 3 hours, depending on whether or not the infant was present and demanded attention, on average lasting 1 3/4 hours. In six cases, the fathers were present for some part of the interview, and for items asking if the husband would have agreed with a view expressed by the mother were in such cases themselves asked directly.

Self-report Questionnaires, Batch 1: Following the interview, mothers were asked if they would mind completing a batch of questionnaires during the period between the two home-visits. All mothers indicated their willingness and were given the following to complete:
(a) the Eysenck Personality Inventory (EPI)
(b) the Maternal Attitude Scale (MAS)
(c) the General Health Questionnaires (GHQ)

Mothers were instructed to complete the questionnaires in accordance with the standardized instructions printed on the front page of each instrument. They were told that the information required by the questionnaires was to supplement that obtained in the interview.

2. **2nd Home-visit**: On the second home-visit, which took place approximately one-week after the first, the observation of Mother-Infant Interaction, Infant Developmental Assessment and Ratings of Maternal and Infant Attributes were conducted by the author. When making the appointment for this visit, mothers were asked to select a period of the day when their infants were normally awake, if possible, for about two hours.

(i) **Observation of Mother-Infant Interaction**: Mothers were told that the purpose of the observation was to observe the infant's behaviour during the course of his/her daily routines, and therefore no special arrangements were to be made. They were asked, where possible, to choose a period which encompassed feeding and changing the baby, and the procedure for observation was briefly described. If the baby was asleep at the time of the author's arrival, or fell asleep during the visit, no attempts
were to be made to interfere. As was to be expected with babies of this age, a number of accommodations had to be made to the infant's requirements. If a baby was unwell, the appointment was postponed; if the baby was asleep on arrival the author waited and chatted to the mother; if the baby fell asleep and was likely to sleep for a couple of hours, a further appointment was made; if the baby tended to 'cat-nap', the author waited for him/her to awake. Twenty of the observations could not be completed in one visit, and a third visit was arranged as soon as possible thereafter.

Mothers were instructed to ignore the author, as far as possible, and to continue with their normal routines. This meant, in practice, that some mothers were out of the room for considerable periods, engaged on a variety of household chores, or were present but engaged in their own pursuits such as reading, sewing, or letter writing. If the mother removed the baby to another room for the purposes of changing or feeding, the author followed and continued observations.

Using the system of observation described in Chapter 11 Section 5, infant behaviour and mother-infant interaction was observed for a total of one hour when the infants were aged 3-4 months. The observer (the author) wore an earpiece linked to an
electronic 'bleeper' device which signalled 10-second time intervals while she simultaneously recorded the behaviours observed for 360 10-second time intervals. In 5 cases, the father was present for some period of the observation and his interactions with the baby were included in the observation record. In two cases a person other than the mother or father was present and was similarly included in the observation record if she interacted with the baby.

Infant Developmental Assessments: Developmental assessments, using the Bayley Scales of Infant Development, were carried out by the author following the observation period on the assumption that the observation period would give the infant time to adjust to the presence of the author. Mothers were told that the assessment was in two parts, the first part being concerned with the infant's mental development, and requiring her to position the infant on her lap in front of a table, in such a way as to leave the infant free to move his/her arms. They were told that no particular significance was attached to the equipment being used, the toys, for example, serving only to elicit reactions, but in order to make valid comparison, the same equipment had to be used for each infant. On completion of each group of items, the mother was informed of the assessment being made. For example, after presentation of the rattle and bell,
the mother was told that apart from testing the baby's hearing, the author was interested in whether the baby could locate sounds. If an infant became restless or distressed during the table items, the infant's interest was recaptured by switching to the floor items.

The mother was informed that this part of the test was concerned with the infant's psycho-motor development, or central control of muscular movements. The mother was asked if she wished to provide any floor-covering for her infant, and invited to position herself within the baby's view. As with the table items, comments were made to the mother that certain items were for example, to examine the baby's progress towards sitting unaided, or towards crawling. All the mothers were intensely interested in their infants' performance for the developmental assessment, drawing comparisons with other assessments carried out at Baby Clinics. Four of the mothers had some knowledge of such techniques as a result of their own training as nurses, midwife and educational psychologist. All mothers wanted to know how their babies "had done" and were assured that their infants were developing quite normally or, where appropriate, seemed to be advanced for their age. A few mothers went further and wanted to know their infants' scores; where it seemed approp-
appropriate as with the mothers discussed above, this information was given. For the vast majority of mothers, the reassuring comment that the baby was developing well sufficed.

(iii) Self-report Questionnaires, Batch 2: Before leaving the home, mothers were asked if they would mind completing a second batch of questionnaires in their own time, and returning them to the author in the Freepost envelope provided. All mothers agreed and were given the following:

(a) Infant Temperament Questionnaire (ITQ)
(b) Anxiety Scale Questionnaire (ASQ)
(c) Attitudes Towards a Dual Role for Mothers Questionnaire
(d) Self-esteem Scale

Mothers were instructed to complete the questionnaires in accordance with the standardized instructions printed on the schedules. They were told that the information in (b), (c) and (d) above was to supplement that obtained from the interview, and that the ITQ was to give their perceptions of the baby's temperament.

(iv) Mother and Infant Ratings: The three rating scales described in Chapter 11, Section 4 above were completed by the author as soon as possible after
departing from the home, following the instructions
given by their authors. Having spent some two to
three hours in the presence of the mother and
infant, the rating scales could be completed with a
fair degree of confidence.

At the conclusion of the second home visit, mothers were
thanked for their co-operation to date and informed of
arrangements for the subsequent contacts to be described next.

4. Inter-phase Contacts

Six weeks after the second home visit, mothers were sent the "Life
Event Checklist" by post, with a Freepost envelope for postal return.
Every eight to twelve weeks thereafter, they were sent another copy
of the questionnaire, regardless of whether or not they had returned
the previous one. Most mothers were extremely conscientious and
returned all copies of the questionnaire.

5. Procedures for Phase II

The third and final visit to each of the mother-infant dyads was
made by the author one year after the first home-visit. As the
infant reached fifteen months of age, the author telephoned each
mother and requested an appointment for a further interview in order
to update data records and to conduct procedures for assessment of
infant socio-emotional development and maternal role satisfaction, the
outcome measures for the present study. Two data-collection instruments were administered during the interview, the Post-Employment Interview Schedule and the Infant Socio-Emotional Development Questionnaire.

(i) **Post-Employment Interview**: The Post-Employment Interview, as described in Chapter 11, Section 2.4, has a varied format and is conducted by way of questions and answers in a conversational style.

(ii) **Infant Socio-Emotional Development Questionnaire**: The information necessary for completion of the Infant Socio-Emotional Development Questionnaire was elicited in the same manner as described above.

The author was only able to conduct the Phase II interview with 56 of the 60 mothers who took part in Phase I. Two mothers had moved abroad in connection with their husband's employment, one mother had moved to Southampton, and the fourth mother had moved, without leaving a forwarding address, on the break-up of her marriage.

All interviews were tape-recorded and lasted approximately two hours, being roughly equally divided between the two parts of the interview.
PART V  RESULTS AND DISCUSSION

Chapter 12  Results - Phase I

Chapter 13  Results - Phase II

Chapter 14  Discussion
CHAPTER 12  RESULTS - PHASE I

Introduction
1  Objective 1
1.1 Selected Socio-demographic Variables
1.2 Personality
1.3 Child-rearing Ideology
1.4 General and Emotional Health
1.5 Perception of Pregnancy and Childbirth Experiences
1.6 Attachment to Infant
1.7 Summary and Conclusions
2  Career Orientation and Attitudes to Employment
2.1 Data from the Pre-Employment Interview Schedule
2.2 Attitudes towards a Dual Role for Women
2.3 Summary and Conclusions
3  Objective 2
3.1 Birth Experiences
3.2 Temperament
3.3 Developmental Status
3.4 Summary and Conclusions
4  Objective 3
4.1 Treatment of the Data
4.2 Infant Communication
4.3 Maternal Vocalization
4.4 Proximity
4.5 Looking Behaviour
4.6 Infant Stimulation and Play Behaviour
4.7 Affectionate Behaviour
4.8 Crying
4.9 Maternal Caretaking Behaviour
4.10 Summary and Conclusions
5  Review of Phase I
6  Postscript to Phase I

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In order to facilitate presentation of the results, the chronological order of the study is maintained, such that data pertaining to Phase I are presented in this chapter, with data pertaining to Phase II being presented in the following chapter. Each section begins with the relevant objective, and incorporates the experimental hypotheses, both having been formulated a priori, together with the pertinent data.

Phase I, it will be recalled, refers to the period of first contact with mothers and infants, extending retrospectively from the mother's upbringing, education, marriage, pregnancy and birth of the first child, to the testing procedures at three months post-partum designed to obtain data on baseline differences between the two groups on a number of variables.

Data analyses were performed as functions of the mothers' employment group, family social class grouping, and, where appropriate, sex of the infant. However, as described in Chapter 11 (Sec. 2.3), a matching procedure was used in allocating subjects so that groups were balanced; the final composition of groups and cell sizes for analyses of variance are shown in Table (3) below.
Table (3) **Composition of sample and Cell Sizes**

<table>
<thead>
<tr>
<th>Employment group</th>
<th>NW</th>
<th>PT</th>
<th>N=60</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 30</td>
<td>n = 30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Class</th>
<th>SC1</th>
<th>SC2</th>
<th>SC3</th>
<th>SC4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 7</td>
<td>n = 25</td>
<td>n = 25</td>
<td>n = 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grouping for analyses</th>
<th>SC1 &amp; 2</th>
<th>SC3 &amp; 4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 32</td>
<td>n = 28</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex of Infant</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 31</td>
<td>n = 29</td>
</tr>
</tbody>
</table>

**Employment Gp x Social Class**

<table>
<thead>
<tr>
<th>NW</th>
<th>PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1 &amp; 2</td>
<td>SC3 &amp; 4</td>
</tr>
<tr>
<td>n = 17</td>
<td>n = 13 (n=30)</td>
</tr>
</tbody>
</table>

**Employment Gp x Social Class x Sex of Infant**

<table>
<thead>
<tr>
<th>NW</th>
<th>PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC1 &amp; 2</td>
<td>SC3 &amp; 4</td>
</tr>
<tr>
<td>K</td>
<td>F</td>
</tr>
<tr>
<td>n=9</td>
<td>n=8</td>
</tr>
</tbody>
</table>
Social class designations in the present study were as follows, and corresponded with the Registrar General’s Classification of Occupations (1970) as indicated:

<table>
<thead>
<tr>
<th>Social class</th>
<th>Registrar General’s Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class 1 - Professional</td>
<td>Classes 1 &amp; 2</td>
</tr>
<tr>
<td>Class 2 - Non-manual</td>
<td>Class 3 Non-manual</td>
</tr>
<tr>
<td>Class 3 - Skilled manual</td>
<td>Class 3 Manual</td>
</tr>
<tr>
<td>Class 4 - Unskilled manual</td>
<td>Classes 4 &amp; 5</td>
</tr>
</tbody>
</table>

Social classes 1 and 2 were subsequently grouped together, as were 3 and 4, for the purposes of significance testing. Since no differences were predicted as a function of social class, and since results were generally insignificant, analyses of social class, together with analyses of sex differences, are only included where significant differences were found.

The major hypothesis being tested in Section 1 was Hypothesis 1 which predicted that there would be significant differences between the two groups. This hypothesis was not derived from any theoretical standpoint but rather served as an heuristic device or stratagem such that, if no significant differences were found and the null hypothesis could not be rejected, the groups could be construed, with a reasonable degree of confidence, as homogeneous with respect to the variables under examination.

Summary tables of results are generally referred to by number in the text and presented in Appendix 2, except where indicated to the contrary.
1 Objective 1 To look for any differences between mothers who propose to work part-time and those who propose NOT to work, prior to the onset of such employment, in terms of the following:

1.1 Selected Socio-demographic Variables

The socio-demographic variables to be discussed in this subsection are:

(a) Age at giving birth
(b) Parental marital status
(c) Birth order and number of siblings
(d) Family employment in subjects' childhood
(e) Separation experiences in subjects' childhood
(f) Education - Mothers
(g) Education - Fathers
(h) Mothers' careers
(i) Marriage
(j) Employment after marriage

The data were obtained from maternal responses given to questions contained in the Pre-Employment Interview Schedule. The recorded interviews were transcribed, scored and coded in accordance with the scoring key (see Appendix 1, Annex 3), and input to the SIR database set up in advance in order to store, accrete and manipulate information gathered from a variety of sources throughout the period of data-collection. Using SPSS the data were cross-tabulated in terms of the mothers' employment group and tested
for statistically significant differences. Data referred to in this section are summarized in Table (1) of Appendix 2.

a) Age at giving birth: Hypothesis 5 predicted that mothers who proposed to return to work would give birth to their first child later than mothers who proposed NOT to return to work. Responses show that mothers whose intention was to resume work within a year of giving birth tended to have their babies about two years later than mothers who intended to give up work, the modal age for giving birth to the first child in the PT group being 27 years, compared with 25 years for the IV group. However the range for the part-time group (PT) was 20-33 years, with a mean of 26.9 years, and the range for the non-working group (IV) was 20-37 years, with a mean of 26.3 years. Whilst this result was in the predicted direction, the difference was not statistically significant, and the hypothesis is therefore rejected.

b) Parental marital status: There was no significant difference in parental marital status, the majority of mothers (88.3%) coming from intact homes.

c) Birth order and number of siblings: There was no difference between the two groups in terms of the birth order of the subjects, nor in how many brothers and sisters they had.

d) Family employment in subject’s childhood: There was no significant difference between the two groups in the range of
their father's employment, classified according to the Registrar-General's Classification of Occupations (1980).

With respect to their mother's employment status during their childhood, it was predicted (Hypothesis 2) that mothers who proposed to return to work would be more likely to have had working mothers themselves than mothers who proposed NOT to return to work. The results show, however, that it was the NW group who were more likely to have had an employed mother than the PT group, who were themselves planning to return to work during their baby's first year. In the NW group, 73.3% had a mother who worked, compared with 50% of the PT group, the difference approaching statistical significance (Chi-square = 3.45, df = 1, significance = .06). In the NW group, 15 of the subjects' mothers had worked on a part-time basis and 7 full-time, whereas in the PT group, employment was equally divided with 7 working full-time and 7 part-time. These differences were statistically significant (Chi-square = 7.71, significance = .05). This unexpected reversal of the hypothesis is interesting inasmuch as it seems to suggest that maternal influence on the decision to return to work acts in a negative direction. It might be the case that the subjects whose own mothers had worked (predominantly in the NW group) had negative experiences associated with their mothers' employment which subsequently influenced them to reject the idea of working themselves, in order to reverse the child-care experiences of their children, compared with their own.
It may also be linked to the finding that the NV group were more likely to attribute their mother's employment to financial necessity than the PT group, who attributed it to social or vocational reasons, the difference being weakly significant (Chi-square = 6.74, significance = .08), since the literature suggests that the meaning of a mother's employment to her family can influence its effects. This finding will be discussed further in the following chapters.

e) Separation experiences in Subjects' childhood: Separation experiences were defined to include holidays spent apart from parents, or physical separation resulting from hospitalization of parent or child, parental marital disturbance or school experiences. Data included reasons for separation, duration and frequency of separations, and caretakers during such separations. No significant differences were found in the separation experiences of the two groups.

f) Education - Mothers: There were no significant differences in the types of school attended by the mothers in each group, nor in the ages at which the mothers left school. With respect to further education, it was predicted (Hypothesis 3) that mothers who proposed to return to work would have a greater educational investment than mothers who proposed NOT to return to work. The results show that although more mothers in the PT group had had some form of training than had mothers in the NV group, the
difference was not significant, nor was there any significant difference in the higher qualifications obtained. Training was full-time for 40% of mothers in the PT group, compared with only 20% of the NW group, and a total of 9 mothers (15% of the sample) had been to University, this figure representing 20% of the PT group and 10% of the NW group. Whilst these results were in the predicted direction, as they failed to achieve statistical significance, the hypothesis cannot be supported.

g) Education—Fathers: Mothers were asked about the education of their husbands. From their responses, there were no significant differences in the types of school attended by the fathers in each group, in their further education, or qualifications.

h) Mothers' careers: There were no significant differences between the two groups in the type of employment in which they had been engaged, in the number of jobs they had held, nor in the period for which they had held their last job before childbirth.

i) Marriage: It was predicted (Hypothesis 4) that mothers who proposed to return to work and who had a greater educational investment in their career would marry later than mothers who proposed not to return to work. As no significant differences were found between the two groups in the age at which they were married or began living with their partner, this hypothesis is rejected.
 Employment after marriage: There were no significant differences between the two groups in terms of changes in the wife's employment after marriage.

Hypothesis 1 predicted significant differences between the two groups in the socio-demographic variables under examination. As the summary of significant differences shown in Table (7) below indicates, only 3 of the 22 socio-demographic variables examined showed significant differences, and these were all related to the employment of the subject's mother. On the basis of these results, it is not, therefore, possible to reject the null hypothesis; the two groups can therefore be construed as homogeneous with respect to the socio-demographic variables under examination.

1.2 Personality

There were two sources of data for the assessment of maternal personality; firstly, a number of questions in the Pre-Employment Interview Schedule asked mothers to rate their personality and to assess whether they had perceived any changes in personality as a function of pregnancy and childbirth. These data were coded and scored in accordance with the scoring key for the Interview Schedule and cross-tabulated in terms of employment group. Secondly, mothers completed the Eysenck Personality Inventory, which was scored in accordance with the manual, coded, and added to the data-base. Using SPSS, the data were tested for
statistically significant differences between employment groups and for class differences by means of Analysis of Variance. Tables (2a & b) of Appendix 2 summarize the results of the statistical analyses.

There were no significant differences between the two employment groups in the retrospective rating of their own personality prior to pregnancy on a five-point scale ranging from 'Very lively and outgoing' to 'Very quiet and introspective'. Over half of the mothers did NOT feel that their personalities had changed during pregnancy; mothers who felt their personalities HAD changed during pregnancy were almost equally divided in their perception of the direction of change. Just under half of the mothers thought their personalities had changed as a result of having the baby, however, as before, they were almost equally divided in the perceived direction of the change, there being no significant differences between the employment groups.

The Eysenck Personality Inventory, (EPI), also failed to differentiate between the two groups. The range of scores for Extraversion was from 6 to 20, and as Table (4) below indicates, the mean for the PT group was 14.44 and 12.87 for the NV group. For Neuroticism, scores ranged from 3 to 17, with a mean of 8.73 for the PT group and 8.93 for the NV group.

It was predicted in Hypothesis 1 that there would be significant differences in the personalities of mothers in the two employment
groups. As neither source of data found any statistically significant differences between the two employment groups, the hypothesis cannot be supported. As the null hypothesis cannot be rejected, the two groups can, therefore, be construed as homogeneous with respect to personality.

Table (4) EPI - Mean scores and standard deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraversion</td>
<td>NW 30</td>
<td>12.87</td>
<td>3.08</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>14.44</td>
<td>3.73</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>NW 30</td>
<td>8.93</td>
<td>3.68</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>8.73</td>
<td>3.45</td>
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</table>

1.3 Child-rearing Ideology

There were two sources of data for the assessment of differences in child-rearing ideology, namely the Pre-Employment Interview Schedule and the Maternal Attitude Scale (COHLER, WEISS & GRUNEBERG, 1970). Data from the former were treated in the manner previously described, and are reported in sub-sections a) and b) below. The Maternal Attitude Scale was scored by hand according to the authors' directions, and the ten issue scales
calculated and entered into the data-base. From these, the five summary factors were computed and analysed, the results of the analyses being reported in sub-section c) below. Summaries of the results reported in this section appear as Tables (3a & b) of Appendix 2.

a) **Attitudes to alternative care:** It was predicted in Hypothesis 12 that mothers who proposed NOT to work would express a stronger belief in the importance of exclusive maternal care than mothers who proposed to return to work. Results from this data source were in the predicted direction, but as they failed to achieve statistical significance, they cannot support the hypothesis. Hypothesis 12 is, therefore, rejected.

Following on from the above, more of the KV group favoured care by a relation in the baby's own home, whilst more of the PT group favoured care outside the home by a non-relative. Although this was not a significant result, it does suggest that the NV group would seek to mirror exclusive maternal care if alternative caretaking were unavoidable, whereas the PT group would seek more professional care.

Significantly more of the PT group were already leaving their babies in the daytime than were the NV group (Chi-square = 6.46, df = 1, significance = .04), the majority, regardless of employment group, leaving the baby in the care of a relative, who was usually the grandmother.
b) Child care practices: Mothers were asked about various aspects of child care and infant behaviour. With respect to feeding, the majority of mothers (86.7%) had made some attempt to breastfeed their babies, mostly because they wanted to, but a minority (13.3%) because they felt they 'ought to', although their own inclinations were otherwise. For 30% of mothers, breastfeeding had not been satisfactorily established, either due to lack of milk or to the infant's difficulty in obtaining milk from the breast. Breastfeeding experiences did not significantly differentiate between the two employment groups.

By three months of age, although the majority of babies were feeding to a routine, less of the PT group were likely to have established routine feeding than the NV group (56.7% of PT compared with 73.3% of NV group). This may well be related to the mothers' ratings of how 'easy to feed' the baby was, as the NV group were significantly more likely to rate their baby as 'easy to feed' than were the PT group (τ = -.24, p = .02). There was no difference, however, in the reported incidence of colic in the two groups, nor in the mothers' perception of feeding as a 'problem'.

There was no significant difference between the two groups in their belief in paternal involvement in the care of the child. In practice, however, more of the NV group actually shared feeding with their husbands, and in both groups, it was usually the
mother who attended to the baby during the night; these differences fell short of statistical significance.

c) Maternal Attitude Scale: Data from the Maternal Attitude Scale (COHLER, WEISS & GRUNEBERG, 1970) were transformed in the manner described above into the following five independent summary factors:

- Appropriate Control of the Child's Aggressive Impulses (FA)
- Encouragement vs Discouragement of Reciprocity (FB)
- Appropriate vs Inappropriate Closeness (FC)
- Acceptance vs Denial of Emotional Complexity in Child-rearing (FD)
- Comfort vs Discomfort in Perceiving and Meeting the Baby's (Physical) Needs (FE)

The factors and their meaning are fully described in Annex 7, Appendix 1 and need not be reiterated here. The mean scores and standard deviations for the summary factors are set out in Table (5) below.

Using SPSS, the five summary factors were submitted to Analysis of Variance, the results of which are summarized in Table (3b) of Appendix 2.

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None of the ten issue scales nor the five summary factors differentiated between the two groups, nor were there any differences as a function of the social class of the mother.

Table (5) Maternal Attitude Scale: Means and standard deviations

<table>
<thead>
<tr>
<th>Summary factor</th>
<th>Mean Score</th>
<th>Std deviation</th>
</tr>
</thead>
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<tr>
<td></td>
<td>NW</td>
<td>PT</td>
</tr>
<tr>
<td>FA</td>
<td>552.20</td>
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<td>FB</td>
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<td>238.57</td>
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<tr>
<td>FC</td>
<td>223.10</td>
<td>221.57</td>
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<tr>
<td>FD</td>
<td>145.23</td>
<td>146.20</td>
</tr>
<tr>
<td>FE</td>
<td>163.83</td>
<td>167.53</td>
</tr>
</tbody>
</table>

It was predicted in Hypothesis 1 that there would be significant differences between the two groups of mothers in child-rearing ideology. As the only significant differences found were in whether or not mothers left their infants, and in rated ease of feeding, the results reported in this section do not support the hypothesis. As the null hypothesis cannot be rejected, the two groups can, therefore, be construed as homogeneous with respect to child-rearing ideology.
1.4 General and Emotional Health

Sources of data for the assessment of differences in mothers' general and emotional health were the Pre-Employment Interview Schedule, the IPAT Anxiety Scale Questionnaire or ASQ (CATTELL & SCHEIER, 1961b), the General Health Questionnaire or GHQ (GOLDBERG, 1972, 1978), and the Self-Esteem Inventory (ROSENBERG, 1965). The standardized questionnaires were scored in accordance with their authors' directions, coded and entered into the database. Using SPSS, data from the Pre-Employment Interview Schedule were cross-tabulated by employment group, and the questionnaire data were submitted to Analyses of Variance by employment and social class groupings. Means and standard deviations for the questionnaire data are set out in Table (6) below, and results of the statistical analyses are summarized in Tables (4a & b) of Appendix 2.

a) Health prior to pregnancy: From retrospective responses in the Pre-Employment Interview Schedule, there were no significant differences between the two employment groups in the rating of their health prior to pregnancy, in the number of long-term complaints nor in the frequency of complaints. There were no significant differences either in the number of mothers in each group who had consulted their G.P.'s for sleeping difficulties or anxiety. However, 36.7% of the PT group had consulted their G.P.'s for depression prior to pregnancy, compared with 10% of the NV group, a difference that was statistically significant
(Chi-square = 4.57, df = 1, p = .03). As reported in the next section, this difference had disappeared three months after giving birth. A possible explanation to account for the difference during pregnancy could lie in the congruence between employment status and child-rearing ideology. It might have been the case that prior to pregnancy, prospective mothers who were strongly career-oriented were experiencing some dissonance over the decision to start a family and their desire to pursue their career, which manifested itself in overt symptoms of depression. This possibility will be explored further in the next chapter when the findings on congruence are presented.

b) Health at 3 months post-partum: There were no significant differences between the two groups in the rating of their general health at three months post-partum, nor in the frequency of visits to their G.P. All of the mothers were in reasonably good health and reported that they were coping 'very well' or 'quite well' with motherhood. A minority of mothers in each group reported suffering from depression 'occasionally', and one mother in the NW group reported feeling 'constantly' depressed. Occasional feelings of anxiety were reported by 40% of the sample, and occasional sleeping difficulties by 60%. Half of the sample reported worrying about their babies 'occasionally', and a further 20% 'constantly', but none of the differences between the two employment groups achieved statistical significance.
c) IPAT Anxiety Scale Questionnaire: Sten scores (standard scores with a 10-point range), were calculated for the ASQ in addition to total scores and ranged from 2 to 9, with a mean of 5.03 for the NW group and 5.57 for the PT group. There were nine low scores indicating that mothers were 'very relaxed', and of these 6 were in the NW group. In the 'getting serious' range of anxiety, 3 of the 5 scores were from the PT group. There was only one 'very serious' sten of 9, and this was scored by a NW mother (Subject 05) who also scored highest on the GHQ. Other sources of data supported this high score, indicating that this young mother was having difficulties coping with her son, her marriage was in difficulty, and she was already pregnant again (three months after giving birth), subsequently having an abortion. Analysis of variance indicated that there were no significant differences either as a function of employment group or social class of the mother.

d) General Health Questionnaire: Scores for the GHQ ranged from 4 to 53, with a mean of 13.70 for the PT group and 12.30 for the NW group. Using Goldberg's criterion score of 20 as definition of a 'case', 7 of the 60 mothers could be so defined, of whom 5 were in the PT group and 2 in the NW group. The differences between the two employment groups failed to achieve statistical significance, and there was no difference as a function of the social class grouping of the mother.
Table (6) *Means and standard deviations for Anxiety Scale.*

**General Health Questionnaire and Self-esteem Inventory**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean Score</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASQ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sten NW</td>
<td>30</td>
<td>5.03</td>
<td>1.77</td>
</tr>
<tr>
<td>PT</td>
<td>30</td>
<td>5.57</td>
<td>1.70</td>
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<tr>
<td>Total NW</td>
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<td>26.47</td>
<td>10.28</td>
</tr>
<tr>
<td>Total PT</td>
<td>30</td>
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<tr>
<td>GHQ</td>
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<td></td>
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<tr>
<td>Total NW</td>
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<td>12.30</td>
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<tr>
<td>Total PT</td>
<td>30</td>
<td>13.70</td>
<td>7.14</td>
</tr>
<tr>
<td>Self-Esteem</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total NW</td>
<td>30</td>
<td>7.21</td>
<td>3.26</td>
</tr>
<tr>
<td>Total PT</td>
<td>30</td>
<td>7.48</td>
<td>3.38</td>
</tr>
</tbody>
</table>

e) **Self-esteem Inventory**: Scores for the Self-esteem Inventory ranged from zero to 14, with a mean of 7.21 for the NW group and 7.48 for the PT group, the higher score indicating a lower level of self-esteem. The analyses failed to reveal any statistically significant differences between the two groups, either as a function of employment group or of social class.
It was predicted in Hypothesis 1 that there would be significant differences between the two groups in their general and emotional health. The findings presented in this section do not support that hypothesis. This means that the null hypothesis cannot be rejected, which in turn means that the two groups can be construed as homogeneous with respect to general and emotional health at three months post-partum.

1.5 Perception of Pregnancy and Childbirth Experiences: Data for the assessment of differences in mothers' perceptions of pregnancy and childbirth came from responses to questions in the Pre-Employment Interview Schedule, which were treated in the manner described before.

a) Pregnancy data: Data analyses failed to reveal any significant differences between the two employment groups in terms of the following:

- Years of marriage prior to pregnancy
- Whether or not the pregnancy was planned
- Numbers of previous pregnancies
- Outcomes of previous pregnancies
- Ratings of health in pregnancy
- Health problems in pregnancy
- Feelings of attractiveness in pregnancy
- Feelings about the foetus
- Stage of pregnancy in ceasing employment
b) Childbirth data: A significant association was found between the mother's employment group and her perception of pain in labour, with 66.67% of the PT group rating labour as more painful than expected, compared with 36.7% of the NV group ($\tau_c = -.31, p = .01$). These figures include mothers who experienced labour before delivery by Caesarean section. The association occurred even though other data such as length of labour and degree of medical intervention indicated that there were no differences between the two groups on such variables.

The flavour of the differing perceptions of pain can perhaps best be illustrated by quoting briefly from two of the interview transcripts.

**Example 1. Subject S40, NV group**

'It wasn't as bad as I thought it was going to be; less painful than I thought it would be, I mean, it was painful, but not as bad as people had made me think it was going to be'

**Example 2. Subject S04, PT group**

'I hated it, I mean I was frightened even though I went to all the classes...to be quite honest, they
frightened me even more. Ignorance, I think, can be bliss. I mean, it was just the most hellish experience I've ever been through. I wouldn't like to go through it again, no, it put me off completely I must admit'

The data analyses failed to reveal any statistically significant differences between the two groups in terms of the following:

- Rating of birth experience
- Whether or not the husband was present
- Hours of labour
- Type of presentation (e.g. cephalic, breech)
- Type of delivery (e.g. spontaneous vaginal, forceps)
- Induction procedures (e.g. forewater amniotomy, hormonal)
- Medication (e.g. pethidine, epidural)
- Whether or not episiotomy was performed
- Birthweight of the infant
- Whether or not infant required Special Care Unit

Results of these analyses are summarized in Table (5b) of Appendix 2.

It was predicted in Hypothesis 1 that there would be significant differences between the two employment groups in pregnancy and childbirth experiences. The data presented in this section do not support this hypothesis, consequently the null hypothesis cannot be rejected, which means that the two groups can be construed as homogeneous with respect to pregnancy and childbirth experiences.
It was further predicted in Hypothesis 11 that mothers with a strong personal career orientation would perceive pregnancy and childbirth more negatively than mothers without a strong career orientation. The finding that mothers in the PT group perceived childbirth as more painful than expected partially fulfills the prediction, but the results overall do not support the hypothesis.

1.6 **Attachment to Infant**

'Attachment' is here confined to data pertaining to the early indicators of attachment, as, it will be recalled, the infants were only aged three months when data were collected for Phase I of the study. The data presented in this section were obtained from responses to the Pre-Employment Interview Schedule, which were treated in the manner described before, and the Mother Rating Scale (BAKEMAN & BROWN, 1980), which was scored according to the authors' directions. A summary of the data appears as Table (6) of Appendix 2.

There were no significant differences between the two groups in reported satisfaction with medical or nursing care, or feelings of being 'in control' of the situation during their deliveries. Most of the mothers (65%) were given the baby to hold before (s)he was cleaned, and kept the baby with them for at least half an hour after the birth, and just under half of each group had a
baby of the sex they preferred, there being no significant
difference between the groups.

A minority of mothers in each group, 5 in the PT group and 4 in
the NV group, considered their newborn babies unattractive or
even ugly (one mother said the baby was 'just like ET'), but the
majority of mothers in each group thought their babies were
'beautiful'. Overall, 53.3% of mothers felt 'an instant surge of
love' for their babies; of those who did not instantly love their
babies, 91% reported that although they were initially
indifferent, they gradually came to love their babies over the
next few days as they began to take care of them. A minority of
mothers in each group, (4 in the NV group and 2 in the PT group),
had decidedly negative feelings towards their babies, commonly
blaming the baby for the pain they had experienced during birth.
Four mothers in each group, (13.3% of the sample), thought that
the arrival of the baby would 'spoil' their relationship with
their husbands; 11 mothers, (5 in the NV group and 6 in the PT
group) thought that the baby would improve their relationship
with their husband.

The final indicator of attachment was the score each mother
obtained on the Mother Rating Scale (BAKEMAN & BROWN, 1980). This
scale, which was described in Chapter 11, Section 4.2, and is
included as Annex 17 of Appendix 1, yields an index of the
mother's overt behavioural expression of attachment. The mean
index obtained for the NV group was 43.6 (s.d. = 4.99), compared
with 42.27 (s.d = 7.66) for the PT group, the difference was not statistically significant.

It was predicted in Hypothesis 1 that there would be significant differences between the two groups in attachment to their infant. As the results presented in this section do not support that hypothesis, the null hypothesis cannot be rejected. Consequently the two groups can be construed as homogeneous with respect to attachment to their infants at three months post-partum.

1.7 Summary and Conclusions

Hypothesis 1: It will be recalled that the status of Hypothesis 1 differed from other hypotheses discussed in this section inasmuch as it was not derived from any theoretical standpoint, but served as a stratagem for the assessment of homogeneity between the two groups. It predicted that there would be significant differences between mothers proposing to work part-time and those not proposing to work, PRIOR to the onset of such employment, in terms of selected socio-demographic variables, personality, child-rearing ideology, general and emotional health, pregnancy and childbirth experiences, and attachment to infant at three months of age.

As the summary in Table (7) below shows, given the number of variables examined, there were very few significant differences between the two groups of mothers, and where found, could have occurred by chance. Hypothesis 1 must therefore be rejected.
Table (7) **Hypothesis 1: Summary of baseline differences between NW and PT groups**

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<tr>
<th>Variable</th>
<th>Signif. diff between gps</th>
<th>No signif. diff between gps</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-demographic variables</strong></td>
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</tr>
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<td>Number of siblings</td>
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<td>Fathers' employment classif.</td>
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<td>Own mother worked</td>
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<td>Full or part-time</td>
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<td>Type of school attended</td>
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<td>Higher qualifications</td>
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<td>Husband's type of school</td>
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<td>Mothers' employment classifications</td>
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361
<table>
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<td>Rating prior to pregnancy</td>
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<td>Personality change during pregnancy</td>
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</tr>
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<td>Personality change after birth</td>
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<tr>
<td>EPI</td>
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<td><strong>Child-rearing ideology</strong></td>
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<td>Belief in need for exclusive care</td>
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<td>'Ideal' caretaking arrangements</td>
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<td>Type of caretaker</td>
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<td>Breastfeeding experiences</td>
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<td>Ease of feeding</td>
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<td>Incidence of colic</td>
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<td><strong>General and Emotional health</strong></td>
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<td>General health</td>
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Table (7) cont

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<tr>
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<td><strong>At 3mths post-partum</strong></td>
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<td>Visits to GP</td>
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<td>Coping with baby</td>
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<td>Depression</td>
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<tr>
<td>Anxiety</td>
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<tr>
<td>Sleeping difficulties</td>
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<td>Self-esteem</td>
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<td><strong>Pregnancy and childbirth</strong></td>
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<td>Yrs of prior marriage</td>
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Table (7) cont

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</thead>
<tbody>
<tr>
<td>Rating of birth experience</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Whether husband present</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hours of labour</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Type of presentation</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Type of delivery</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Induction procedures</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Medication</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Episiotomy</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant's birthweight</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Special care</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td><strong>Attachment to infant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feelings of control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Holding infant uncleaned</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Keeping infant</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Preferred sex of infant</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Feelings for baby</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mother rating scale</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

364
Hypothesis 2: This hypothesis predicted that mothers who proposed to return to work part-time would be significantly more likely to have had working mothers themselves than mothers who proposed NOT to return to work. This hypothesis was rejected.

Hypothesis 3: The hypothesis that mothers who proposed to return to work would have had a significantly greater educational investment than mothers who proposed NOT to return to work was rejected.

Hypothesis 4: The hypothesis that mothers who proposed to return to work and who had a greater educational investment in their careers would marry significantly later than mothers who proposed NOT to return to work, was rejected.

Hypothesis 11: The hypothesis that mothers with a strong personal career orientation would perceive pregnancy and childbirth more negatively than mothers without a strong career orientation received only partial support.

Hypothesis 12: The hypothesis that mothers who proposed NOT to return to work would express a stronger belief in the importance of exclusive maternal care than mothers who proposed to return to work, was rejected.
Conclusions: In the light of the above summary, the following conclusions may be drawn:

1) Given the very large number of variables examined, very few significant differences emerged from the data analyses.

2) Given the wide variety of variables examined, and the paucity of significant differences, the two groups of mothers may be considered, to all intents and purposes, as homogeneous with respect to the variables under examination.

3) If the two groups are construed as homogeneous, it follows that any significant differences subsequently found between the two groups on the outcome variables can, with a reasonable degree of confidence, be attributed to the mothers' employment status.

2 Career Orientation and Attitudes to Employment

Hypotheses discussed in this section differ from those in the previous section in that they are theoretically derived from the author's reading of the literature.

Data presented here are from two sources, namely, the Pre-employment Interview Schedule and the questionnaire 'Attitudes towards a Dual Role for Women' (DALRYMPLE, LOVE & KELSOE 1971). Responses from the former were scored, coded and analysed in the manner previously described, and the results are reported.
sections a) to d) below. The Attitude questionnaire, reported in Section 2.2 below, was scored in the manner prescribed by its authors, coded, added to the data-base, and analysed by means of t-tests and Analysis of Variance. The results reported in this section are summarized in Table (7a & b) of Appendix 2.

2.1 Data from the Pre-Employment Interview Schedule

a) Career aspirations: It was predicted (Hypothesis 6) that mothers who proposed to return to work would be more career-oriented than mothers who proposed NOT to return to work. Whilst responses to retrospective questions show that there were no significant differences between the two groups in their career aspirations or feelings of vocation, more of the KV group only saw themselves working until they 'settled down and started a family', a difference that was highly significant (Chi-square = 11.74, df = 1, p = .0006). As this result indicates that the PT group were more career-oriented than the NV group, it supports Hypothesis 6. Career orientation is considered further in section 4.1 of Chapter 14, at fifteen months post-partum.

b) Important factors in a job: There was no significant difference between the two groups in their rating of important factors in a job. In both groups, the majority rated importance of factors in the order 'interest, money, social factors'.
c) **Attitudes in pregnancy to working after the baby was born**: It was predicted (Hypothesis 9) that mothers with a strong personal career orientation would prefer to work after their first child was born. Mothers were asked how they had felt during pregnancy about working after their baby was born. Attitudes at that stage had clearly polarized, with 86.7% of the NV group having 'definitely decided not' or 'preferring not' to work, and 66.7% of the PT group having 'definitely decided' or 'preferring' to work, the difference being highly significant (tau c = -.70, p = .0001). This result is clearly supportive of Hypothesis 9.

It was further predicted (Hypothesis 10) that mothers with a strong personal career orientation would return to work within a year of their first child being born. The results show that the groups differed significantly in the stages at which they would consider resuming employment, with the majority of the NV group (60.0%) anticipating postponing any employment until their child was of primary school age, whereas the majority of the PT group (86.7%) were contemplating returning to work before the baby was one year old (Chi-square = 49.29, df = 5, p = .0001). This result strongly supports Hypothesis 10.

Hypothesis 7 predicted that mothers with a strong personal career orientation would have positive attitudes towards maternal employment in general. The results indicate that whilst the mothers clearly differed in their own employment intentions, they did not differ significantly in their attitudes to maternal
employment in general. The majority of mothers in each group considered that it was a matter for the individual mother to decide upon what was best for her and her baby, given the family's circumstances, with only a minority of each group actually proscribing maternal employment in a baby's first year. This result does not in itself support Hypothesis 7, which will be reconsidered in sub-section (e) below, following the results of the attitude questionnaire. With respect to their perception of other people's attitudes to maternal employment, there was a significant association between the mother's employment group and her perception of how favourably maternal employment was viewed by other people (tau c = .30, significance = .02).

d) Attitudes to working at 3 months post-partum: It was predicted (Hypothesis 8) that mothers with a strong personal career orientation would have stable attitudes towards working after their first child was born. When mothers were asked at three months post-partum how they felt about working, it was found that their attitudes had polarized still further, with 90% of the NV group 'definitely not wanting' or 'preferring not' to work, and 76.7% of the PT group 'definitely wanting' or 'preferring' to work (tau c = -.76, p = .0001). This result strongly supports the hypothesis that attitudes would be stable, at least across the time-period between pregnancy and three months post-partum.

Over 90% of mothers reported that their husbands shared their attitudes to working, and where a difference occurred, it was not
confined to a particular group. One PT mother reported that she wanted to stay at home with her baby, but her husband was insisting that she should return to work as she had promised him she would when 'he agreed to let her have a baby'. A NV mother reported that her husband thought she was 'unnatural' because she 'just had to get out and get a job or she would go mad'.

Reasons for working, or factors which would influence the decision to take employment, were investigated; in the PT group, 70% of mothers said that financial factors would be an influence, although this group were actually better off financially than the NV group, of whom 50% said they would be influenced by financial factors. Although financial factors did not differentiate between the two groups, social factors did, with mothers in the PT group being far more likely to resume work for social reasons than mothers in the NV group (Chi-square = 7.3, significance = .02). An even more significant factor was career importance, cited as an influence upon the decision to take employment by 83.3% of the PT group, compared with only 26.6% of the NV group (Chi-square = 21.83, significance = .0001). This result provides further support for the hypothesis that mothers with a strong personal career orientation would prefer to work after their child was born (Hypothesis 9). 'Desire for a break from the baby', was cited as a factor by 43.3% of the PT group, compared with 26.7% of the NV group, but the difference was not statistically significant.
2.2 **Attitudes towards a dual role for women**: Total scores for the questionnaire 'Attitudes towards a dual role for women' ranged from zero, indicating extremely negative attitudes, to 46, with a mean score of 32.93 for the PT group and a mean of 28.41 for the NW group, the difference approaching statistical significance ($t = 1.91$, $df = 58$, $p = .06$). This result is taken as further support for Hypothesis 7, which predicted that mothers with a strong personal career orientation would have positive attitudes to maternal employment in general.

Table (8) below sets out the mean scores and standard deviations for the four dimensions contributing to the total. Only one dimension differentiated between the employment groups; on Dimension 1, 'Effect of the Mother's working upon the Children', the mean for the PT group was 5.70 compared with a mean of 3.53 for the NW group ($t = 2.91$, $df = 58$, $p = .005$, 2-tailed). This indicates that the NW group considered the effects of working to be far more deleterious for the children than did the PT group.

For Dimension 2, 'Money Contribution of the Working Wife'; Dimension 3, 'Effect on Home and Relationship Maintenance'; and Dimension 4, 'Implications for Society', Analysis of Variance indicated that there were no significant main effects either as a function of the employment group or of the social class of the mother. There was, however, a significant two-way interaction between employment group and social class on Dimension 3, 'Effect on Home and Relationship Maintenance', ($F = 4.71$, $df = 1$, 371
significance = .03), such that mothers of social class grouping 1
in the KV group had the most negative attitudes whilst those from
the same social class but in the FT group had the most
favourable. Possibly the latter are able to compensate to a
degree for any deleterious effects on the home through the
provision of additional help.

Table (6) *Attitudes towards a Dual Role for Women*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effect of Mother's work upon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>children</td>
<td>NW 30</td>
<td>3.53</td>
<td>2.97</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>5.70</td>
<td>2.62</td>
</tr>
<tr>
<td>Money contribution of working</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>wife</td>
<td>NW 30</td>
<td>5.90</td>
<td>2.30</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>6.50</td>
<td>1.97</td>
</tr>
<tr>
<td>Home &amp; relationship maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NW 30</td>
<td>11.60</td>
<td>4.81</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>13.57</td>
<td>3.12</td>
</tr>
<tr>
<td>Implications for society</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NW 30</td>
<td>6.66</td>
<td>3.46</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>7.30</td>
<td>2.64</td>
</tr>
<tr>
<td>Total score</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NW 30</td>
<td>28.41</td>
<td>4.74</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>32.93</td>
<td>4.37</td>
</tr>
</tbody>
</table>
2.3 Summary and conclusions

The following hypotheses were formulated a priori concerning differences between the two groups on variables related to career orientation.

Hypothesis 6: This hypothesis predicted that mothers who proposed to return to work would be significantly more career-oriented than mothers who proposed NOT to return to work.

Hypothesis 7: This hypothesis predicted that mothers with a strong personal career orientation would have more positive attitudes to maternal employment in general.

Hypothesis 8: This predicted that mothers with a strong personal career orientation would have stable attitudes towards working after their first child was born.

Hypothesis 9: This predicted that mothers with a strong personal career orientation would prefer to work after their first child was born.

Hypothesis 10: This predicted that mothers with a strong personal career orientation would be significantly more likely to return to work within a year of their first child being born.

The results presented in this section provided clear support for all the hypotheses listed above.
Conclusion

The number of significant differences related to career orientation and attitudes to maternal employment manifested between the two groups of mothers, who, on initial inspection, and as reported in Section 1 above, appear to be homogeneous on a wide variety of background variables, clearly justifies the considerable time and research effort devoted to their examination. The strength and stability of such attitudes must throw doubt on the validity of the findings of a large number of studies in the literature which have paid scant attention to pre-existing differences in attitudes between working and non-working mothers. The results presented here strongly suggest that even when groups of mothers are carefully selected, balanced for social class and sex of the infant, the fact that they differ in their future employment intentions is indicative of a cluster of differing and stable attitudes which should be taken into account when attributing differential outcomes solely to the employment status of the mother.
3. **Objective 2** To look for any differences between the infants of mothers who propose to work part-time and those who propose NOT to work, prior to the onset of such employment, in terms of the following:

The major hypothesis being tested in this section is Hypothesis 13 which predicted that there would be significant differences in the birth experiences, temperament, and developmental status of infants whose mothers proposed to work part-time, compared with infants of mothers who did not propose to work. This hypothesis, like Hypothesis 1, was a stratagem for examining the homogeneity of the two groups of infants, and as such, it was not derived from any theoretical basis.

3.1 **Birth experiences**

Data on birth experiences were obtained from maternal responses to questions in the Pre-Employment Interview Schedule, which were treated in the manner previously described.

A total of 7 infants (11.7% of the sample) were born by Caesarean section, of whom 4 were born to mothers in the NV group and 3 to the PT group. A further 15 infants (25.0% of the sample) were delivered with the assistance of forceps, 8 in the NV group and 7 in the PT group. Thus, for 36.7% of the sample, there was some form of medical intervention in delivery. With respect to labour, 32 babies were induced by means of forewater amniotomy and a further 6 by hormonal
induction, giving a total of 38 (63.3% of the sample) having medical intervention to induce labour. Of these, 15 were from the PT group (50% of the group) and 23 from the NV group (76.7% of the group).

The babies' birthweights ranged from just under 5lbs to just over 9lbs, the modal weight for both groups being in the region of 7lbs. A total of 5 babies, (2 in the NV group and 2 in the PT group), were taken to a Special Care Unit for a brief period.

None of these differences achieved statistical significance in the data analyses. These data are summarized with other childbirth data in Table (5b) of Appendix 2.

It was predicted in Hypothesis 13 that there would be significant differences in the birth experiences of infants whose mothers proposed to return to work part-time, compared with those of infants whose mothers proposed NCT to return to work. As the results presented in this section do not support the hypothesis, the null hypothesis cannot be rejected. The two groups of infants can therefore be construed as homogeneous with respect to their birth experiences.

2.2 Temperament

There were three sources of data for the assessment of infant temperament:
a) the revised Infant Temperament Questionnaire (ITQ)
b) the Infant Rating Scale
c) the Infant Behaviour Record (IBR)

For each instrument, scoring was carried out in accordance with the author(s)' directions, the scores were then coded and added to the SIR data-base. Data from the ITQ and IER were tested by means of Analysis of Variance for statistically significant differences as a function of the employment group and social class of the mother, and of the sex of the infant. Tables (8 & 9) of Appendix 2 summarize the results of the Analysis of Variance. Indices of responsiveness were calculated from the Infant Rating Scale and tested for significant differences as a function of the employment group of the mother by means of t-tests.

a) Infant Temperament Questionnaire (ITQ): The revised Infant Temperament Questionnaire (CAREY & McDEVITT, 1977) is fully described in Annex 14 of Appendix 2. For the present purposes, all nine sub-scales were computed, together with the diagnostic categories to which they give rise. Table (9) below sets out the mean scores and standard deviations for the two employment groups. Analysis of Variance indicated that there were no significant differences as functions of the employment group of the mother or sex of the infant.

With respect to class, a significant difference was found in scores for withdrawal tendencies (ITQ03), such that infants of mothers in social class groupings 3 and 4 showed more withdrawal tendencies.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean</th>
<th>Std deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITQ01 - Activity</td>
<td>IV 30</td>
<td>4.25</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>4.30</td>
<td>0.67</td>
</tr>
<tr>
<td>ITQ02 - Phyzicity</td>
<td>IV 30</td>
<td>2.04</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>2.73</td>
<td>0.56</td>
</tr>
<tr>
<td>ITQ03 - Withdrawal</td>
<td>IV 30</td>
<td>1.97</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>2.14</td>
<td>0.53</td>
</tr>
<tr>
<td>ITQ04 - Adaptability</td>
<td>IV 30</td>
<td>1.95</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>2.04</td>
<td>0.54</td>
</tr>
<tr>
<td>ITQ05 - Intensity</td>
<td>IV 30</td>
<td>3.31</td>
<td>0.71</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>3.30</td>
<td>0.71</td>
</tr>
<tr>
<td>ITQ06 - Negativity</td>
<td>IV 30</td>
<td>2.65</td>
<td>0.62</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>2.69</td>
<td>0.69</td>
</tr>
<tr>
<td>ITQ07 - Persistence</td>
<td>IV 30</td>
<td>3.28</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>3.14</td>
<td>0.99</td>
</tr>
<tr>
<td>ITQ08 - Distractibility</td>
<td>IV 30</td>
<td>2.49</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>2.30</td>
<td>0.60</td>
</tr>
<tr>
<td>ITQ09 - Threshold</td>
<td>IV 30</td>
<td>3.49</td>
<td>0.69</td>
</tr>
<tr>
<td></td>
<td>FT 30</td>
<td>3.42</td>
<td>0.70</td>
</tr>
</tbody>
</table>
than infants of mothers in social class groupings 1 and 2 ($F = 4.38$, $df = 1$, $p = .04$). This isolated difference probably represents a chance finding amongst such a large number of significance tests, as do the two-way interactions listed in the summary table.

The diagnostic categories derived from the sub-scales failed to differentiate in terms of employment group, social class or sex of the infant. The majority of infants (83.3%) fell into the EASY or INTERMEDIATE-LOW categories.

Table (10) Temperament: Diagnostic categories and maternal ratings

<table>
<thead>
<tr>
<th>Variable</th>
<th>NW (%)</th>
<th>PI(%)</th>
<th>Total (%)</th>
<th>Signif</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diagnostic category</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easy</td>
<td>13 (43.3)</td>
<td>10 (33.3)</td>
<td>23 (38.3)</td>
<td></td>
</tr>
<tr>
<td>Intermediate-low</td>
<td>12 (40.0)</td>
<td>15 (50.0)</td>
<td>27 (45.0)</td>
<td></td>
</tr>
<tr>
<td>Intermediate-high</td>
<td>5 (16.7)</td>
<td>3 (10.0)</td>
<td>8 (13.3)</td>
<td>N/S</td>
</tr>
<tr>
<td>Difficult</td>
<td>0</td>
<td>2 (6.7)</td>
<td>2 (3.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Maternal rating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Easier than average</td>
<td>17 (56.7)</td>
<td>16 (53.3)</td>
<td>33 (55.0)</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>13 (43.3)</td>
<td>10 (33.3)</td>
<td>23 (38.3)</td>
<td>N/S</td>
</tr>
<tr>
<td>More difficult than</td>
<td>0</td>
<td>4 (13.3)</td>
<td>4 (6.7)</td>
<td></td>
</tr>
<tr>
<td>average</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Overall, 38.3% of infants fell into the EASY category, of whom 10 (33.3%) were in the PT group and 13 (43.3%) in the NW group. Only 2 infants, both in the PT group, were categorized as DIFFICULT.

On the final part of the ITQ, the mothers' ratings of their infant's temperament in relation to their perception of the 'average' infant, generally supported the diagnostic categories and also failed to differentiate between the two employment groups. The diagnostic categories and maternal ratings are summarized in Table (10) above.

b) Infant Rating Scale: The Infant Rating Scale (BAKEMAN & BROWN, 1980), as described in Chapter 11, Section 4.1, yields an index of the general responsiveness of the infant, as perceived by the author after a period of observation. The mean index for the NW group was 42.37, compared with 41.40 for the PT group, but the difference was not statistically significant.

c) Infant behaviour: As indicated in Chapter 11 (Section 4.3), infants were compared on four scales of behaviour computed from the Infant Behaviour Record. On the first scale designed to measure Social Orientation, (IBE1) infants' scores ranged from 6 to 18 out of a possible score of 27. As Table (11) below shows, infants of mothers in the NW group had a lower mean score (12.87) than infants of mothers in the PT group (13.33).

On the scale measuring General Emotional Tone (IBE2), scores ranged from 4 to 27 out of a possible score of 27, the mean for infants of
### Table (11) Infant Behaviour: Mean scores and standard deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social orientation</td>
<td>NW 30</td>
<td>12.87</td>
<td>2.37</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>13.33</td>
<td>2.64</td>
</tr>
<tr>
<td>Emotional tone</td>
<td>NW 30</td>
<td>19.90</td>
<td>5.16</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>18.30</td>
<td>6.31</td>
</tr>
<tr>
<td>Motivation</td>
<td>NW 30</td>
<td>15.40</td>
<td>4.39</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>15.23</td>
<td>5.52</td>
</tr>
<tr>
<td>Activity</td>
<td>NW 30</td>
<td>46.90</td>
<td>9.17</td>
</tr>
<tr>
<td></td>
<td>PT 30</td>
<td>49.33</td>
<td>11.43</td>
</tr>
</tbody>
</table>

Mothers in the NW group slightly higher (19.90) than that for infants of mothers in the PT group (18.30).

On the third scale measuring Motivation (IBR3), scores ranged from 3 to 26 out of a possible 27, the mean for infants of mothers in the NW group being slightly higher (15.40) than that for infants of mothers in the PT group (15.23).

On the scale measuring Activity (IBR4), scores ranged from 29 to 75 out of a possible 95 points. On this scale, it was the infants of mothers in the PT group who had the slightly higher mean score (49.33, compared with 46.90).
Analysis of Variance indicated that none of the differences between the two groups achieved statistical significance as a function of the mothers' employment status, nor were there any significant class or sex differences.

It was predicted in Hypothesis 13 that there would be significant differences in the temperaments of infants whose mothers proposed to return to work, compared with those whose mothers proposed NOT to return to work. The results presented in this section indicate no significant differences as a function of the employment group of the mother, therefore the null hypothesis cannot be rejected. Consequently the two groups of infants may be construed as homogeneous with respect to temperament.

3.3 Developmental Status

Data for the assessment of developmental status came from the Bayley Scales of Infant Development (BAYLEY, 1969). The data were scored in accordance with the manual, coded and added to the SIR data-base. Using SPSS, the data were analysed by means of Analysis of Variance as a function of the employment group and social class of the mother, and of the sex of the infant. Summaries of the analyses appear as Table (9) of Appendix 2.

a) Mental Development: The range of indices for mental development was from 94 to 140. As Table (12) below indicates, the mean index (KDI) for both groups was above the average of 100,
infants of mothers in the NV group having a slightly lower mean index (119.87) than infants of mothers in the PT group (121.07). Analysis of Variance indicated that there were no significant differences between the two groups as a function of the employment status or social class of the mother, nor as a function of the sex of the infant.

b) Psycho-motor development: The range of indices for psycho-motor development was also above average, ranging from 103 to 150. As Table (12) below indicates, the mean index for infants of KV mothers was, in this case, slightly above that for infants of mothers in the PT group (126.27, compared with 125.53). Analysis of Variance failed to reveal any significant differences between the two groups as functions of the employment status, social class of the mother, or sex of the infant.

Table (12) Developmental Status: Mean indices and standard deviations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number</th>
<th>Mean</th>
<th>Std Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental development</td>
<td>NV</td>
<td>119.87</td>
<td>11.63</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>121.07</td>
<td>11.32</td>
</tr>
<tr>
<td>Psycho-motor devel.</td>
<td>NV</td>
<td>126.27</td>
<td>12.45</td>
</tr>
<tr>
<td></td>
<td>PT</td>
<td>125.53</td>
<td>12.83</td>
</tr>
</tbody>
</table>
It was predicted in Hypothesis 13 that there would be significant differences in developmental status between infants whose mothers proposed to return to work and those whose mothers proposed NOT to return to work. The results presented in this section do not support that hypothesis, consequently the null hypothesis cannot be rejected. The two groups of infants can therefore be construed as homogeneous with respect to developmental status and behaviour at three months of age.

3.4 Summary and conclusions

The experimental hypothesis relevant to the data presented in this section was Hypothesis 13 which predicted that there would be significant differences in the birth experiences, temperament and developmental status between infants whose mothers proposed to work part-time and those whose mothers proposed NOT to work. As previously indicated, this hypothesis was not theoretically derived, but was formulated as a stratagem to test homogeneity in the two groups of infants. As the summary of differences shown in Table (13) below indicates, no significant differences were found between the two groups of infants on these variables. From these results, the following conclusions may be drawn:

1) As no significant differences were found in the birth experiences, temperament, developmental status or behaviour of infants which could be attributed to the employment status of the mother, Hypothesis 13 was rejected.
ii) In view of the number and variety of variables examined, the two groups of infants may be construed, to all intents and purposes, as homogeneous.

iii) If the two groups are construed as homogeneous, it follows that any significant differences subsequently found between the two groups of infants on any of the outcome variables can, with a reasonable degree of confidence, be attributed to the employment status of the mothers.

Table (13)  Hypothesis 13: Summary of baseline differences between infants of mothers in the NV and PT groups

<table>
<thead>
<tr>
<th>Variable</th>
<th>Signif. group diff.</th>
<th>No signif. group diff.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Induction of labour</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Type of delivery</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Birthweight</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Special care</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Temperament (ITQ)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant Rating Scale</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mental development (XDI)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Psycho-motor development (PDI)</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Early socio-emotional development (IBR1 to IBR4)</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
4. **Objective 3**

To examine any differences in the quality or quantity of social interaction in mother-infant dyads between mothers who propose to work part-time and those who propose not to work, PRIOR to the onset of such employment.

4.1 **Treatment of the data**

The source of data for the examination of social interaction was the hour-long observation described in Annex 19 of Appendix 1. A considerable investment of time was required to prepare the raw observation data for analysis. Initially the observation record for each of the 60 dyads was typed by the author onto a computer record, then, using programs devised for the Thomas Coram Research Unit, each record was converted into a numeric code which was tabulated to give frequencies and durations for each target behaviour, and finally, contingency analyses were performed on infant communication behaviours to tabulate the number of maternal respondent behaviours immediately contingent, and with a 10-second latitude of response, upon the infant's communication. These analyses required approximately one hour of computing time per record.

In this form, the data were added to the SIR data-base, then using SPSS, summary variables were created from the target behaviours, and durations expressed as a percentage of the total observation period. Analyses of Variance were performed on the frequencies and percentage durations of the various groups of behaviour as a
function of the employment group and social class of the mother, and the sex of the infant. Summaries of the Analyses of Variance appear as Table (10) of Appendix 2.

The hypothesis being tested in this section is Hypothesis 14, which predicted that there would be significantly different patterns of mother-infant social interaction between mothers who propose to return to work part-time and those who propose not to return to work, PRIOR to the onset of such employment. This hypothesis, unlike hypotheses 1 and 13, was not set up purely to test the homogeneity of the two groups of dyads, but was derived from theoretical expectations.

In the following sections, differences in the frequency and duration of various social behaviours will be reported and the patterns of interaction examined to see whether or not the hypothesis can be supported. It will be observed that standard deviations are frequently very large, possibly reflecting both considerable variation and the inherent instability of such forms of observation, although as discussed in Chapter 11, every care was taken to ensure reliability of measurement.

4.2 Infant Communication

The mean frequencies and standard deviations for infant communication and maternal responses thereto are set out in Table (14) below. As the table shows, the mean number for total infant
### Table (14) Mean frequencies and standard deviations (_ ) for Infant Communication, per hour of Observation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Employment Group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NW</td>
<td>PT</td>
</tr>
<tr>
<td><strong>TOTAL COMMUNICATION</strong></td>
<td>127.70</td>
<td>130.39</td>
</tr>
<tr>
<td></td>
<td>(43.25)</td>
<td>(50.10)</td>
</tr>
<tr>
<td><strong>Immediate contingency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalization/smile/laugh</td>
<td>42.39</td>
<td>41.51</td>
</tr>
<tr>
<td></td>
<td>(18.41)</td>
<td>(20.86)</td>
</tr>
<tr>
<td>Touch</td>
<td>15.92</td>
<td>13.70</td>
</tr>
<tr>
<td></td>
<td>(9.11)</td>
<td>(7.24)</td>
</tr>
<tr>
<td><strong>Delayed contingency</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalization/smile/laugh</td>
<td>47.26</td>
<td>45.80</td>
</tr>
<tr>
<td></td>
<td>(19.46)</td>
<td>(22.09)</td>
</tr>
<tr>
<td>Touch</td>
<td>17.80</td>
<td>15.49</td>
</tr>
<tr>
<td></td>
<td>(9.36)</td>
<td>(7.86)</td>
</tr>
<tr>
<td><strong>TOTAL INFANT VOCALIZATION</strong></td>
<td>71.76</td>
<td>85.52</td>
</tr>
<tr>
<td></td>
<td>(33.13)</td>
<td>(45.50)</td>
</tr>
<tr>
<td><strong>Immediate contingency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalization/smile/laugh</td>
<td>25.34</td>
<td>27.79</td>
</tr>
<tr>
<td></td>
<td>(13.92)</td>
<td>(17.23)</td>
</tr>
<tr>
<td>Touch</td>
<td>6.62</td>
<td>6.24</td>
</tr>
<tr>
<td></td>
<td>(4.73)</td>
<td>(4.33)</td>
</tr>
<tr>
<td><strong>Delayed contingency:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vocalization/smile/laugh</td>
<td>27.81</td>
<td>31.06</td>
</tr>
<tr>
<td></td>
<td>(14.64)</td>
<td>(16.62)</td>
</tr>
<tr>
<td>Touch</td>
<td>7.73</td>
<td>7.05</td>
</tr>
<tr>
<td></td>
<td>(5.86)</td>
<td>(5.25)</td>
</tr>
</tbody>
</table>

Communications (to include non-vocal communications) was slightly higher in the PT group than in the NW group. However, the mean
numbers of maternal vocalizations, smiles, or laughs, and of touch in response to the infant's communication, both immediate and within a latitude of 10 seconds, were higher in the KW group than in the PT group. Additionally, a higher percentage of infant communications were followed by maternal responses from the KW group.

The mean number of infant vocalizations was again higher in the PT group, but the contingency analyses, both immediate and delayed, show that whereas the PT mothers gave more vocalizations, smiles or laughs in response than the KW mothers, the latter responded more with touch. However, a greater percentage of infant vocalizations were followed by maternal response in the KW group.

Analysis of Variance indicated that differences as a function of the mothers' employment group or social class were not statistically significant. However, a striking and unexpected pattern of significant differences emerged in the analyses in terms of the sex of the infant. As Table (14) above shows, boys vocalized more than girls, although not significantly so, and in response received significantly more immediate vocalizations, smiles or laughs ($F = 8.91, df = 1, significance = .004$), and more touches ($F = 4.36, df = 1, significance = .04$). In the following 10 seconds, they also received significantly more vocalizations, smiles or laughs ($F = 11.68, df = 1, significance = .001$), and more touches ($F = 3.88, df = 1, significance = .06$). The mean number of total communications was also higher for boys ($F = 3.21, df = 1, significance = .08$), and in response they received more immediate vocalizations, smiles or laughs ($F = 11.23, df = 1, significance = .002$), more touches ($F = 8.88, df = 1, significance = .004$), and more touches ($F = 4.36, df = 1, significance = .04$).
3.43, df = 1, significance = .07), as well as more delayed responses
(F = 11.63, df = 1, significance = .001 for vocalizations, smiles or
laughs, and F = 3.44, df = 1, significance = .07 for touch).

In terms of the percentage of total infant communication and
vocalization followed by maternal response, boys consistently
received a higher percentage than girls.

It is not immediately apparent why this pattern of results should
have occurred, indeed, studies of language development would suggest
that girls would vocalize more than boys. There was, as the table
shows, a consistent difference in standard deviation, with boys
generally showing much larger deviations, but this would not account
for the observed differences. It might be the case that boys
actually communicate more than girls, even though when measured
purely in terms of language, their development trails that of girls.
The results seem to suggest a mutually reinforcing reward pattern, a
possibility that will be considered further below.

4.3 Maternal Vocalization

As Table (15) below shows, mothers in the NV group vocalized more
often to their infants, and for longer durations than did mothers in
the FT group, but the differences were not found to be statistically
significant.
There was, however, a highly significant effect due to the sex of the infant. As the table indicates, the mean number of vocalizations made to boys was considerably higher than that made to girls, \( F = 9.03, \text{df} = 1, \text{significance} = .004 \), and the percentage duration was also longer \( F = 5.03, \text{df} = 1, \text{significance} = .03 \).

**Table (15) Mean frequencies, durations and standard deviations for Maternal Vocalization, per hour of Observation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Employment Group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>EW</td>
<td>PT</td>
</tr>
<tr>
<td>Maternal Vocalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>136.01</td>
<td>128.36</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(55.90)</td>
<td>(48.16)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>37.99</td>
<td>35.37</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(13.64)</td>
<td>(12.16)</td>
</tr>
</tbody>
</table>

### 4.4 Proximity

Proximity refers to the frequency and duration of time mothers spent in and out of close visual and physical proximity to their 3-month old infant during the course of the observation period.
'Physical touch' is a computed variable encompassing both holding the infant and being otherwise in direct physical contact. As Table (16) below indicates, PT mothers had a slightly higher mean score than NV mothers for both frequency and duration of Physical touch.

Table (16) Mean frequencies, durations and standard deviations for Proximity, per hour of Observation

<table>
<thead>
<tr>
<th>Variable</th>
<th>Employment Group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NV</td>
<td>PT</td>
</tr>
<tr>
<td>Physical touch</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>11.31</td>
<td>12.86</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(3.49)</td>
<td>(5.43)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>114.43</td>
<td>116.40</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(27.43)</td>
<td>(31.37)</td>
</tr>
<tr>
<td>Approach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>6.46</td>
<td>7.64</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(3.55)</td>
<td>(5.15)</td>
</tr>
<tr>
<td>Out of Sight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>4.53</td>
<td>5.42</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(2.91)</td>
<td>(3.64)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>10.32</td>
<td>13.03</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(9.53)</td>
<td>(11.74)</td>
</tr>
<tr>
<td>Out of Reach</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>3.47</td>
<td>4.13</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(1.66)</td>
<td>(2.62)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>7.22</td>
<td>8.87</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(10.01)</td>
<td>(11.78)</td>
</tr>
</tbody>
</table>

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However, mothers in the NV group were out of reach of their infants, and out of sight, less often than mothers in the PT group, and for shorter durations. The table also indicates that PT mothers approached their infants more than NV mothers, but this should be interpreted in conjunction with the previous result, for if PT mothers left their infants more, then they would be expected to approach them more upon their return.

Analysis of Variance indicates that the differences in mean frequencies and durations as a function of the employment group of the mother were not statistically significant, nor were there any significant class effects or interactions.

Whilst boys were again treated differently from girls, being in direct physical contact more often and for longer periods, and out of reach and left less often and for shorter periods than girls, the differences were not statistically significant.

4.5 Looking behaviour

(1) Mutual Gaze: Mutual gaze refers to eye-to-eye contact between mothers and their infants. The mean number of episodes of mutual gaze between mothers and their infants, as shown in Table (17) below, was higher in the NV group than in the PT group, a difference that was statistically significant ($F = 6.55, df = 1$, significance = .03). There was also a very significant effect due to the sex of the infant ($F = 7.36, df = 1$, significance = .009); the cross-breakdown indicates that this again favoured boys, regardless of the employment group of the mother.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Employment Group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NY</td>
<td>PT</td>
</tr>
<tr>
<td><strong>Mutual Gaze</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>31.21</td>
<td>26.47</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(13.37)</td>
<td>(10.61)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>959.17</td>
<td>905.98</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(373.99)</td>
<td>(342.41)</td>
</tr>
<tr>
<td><strong>Mother looking at infant</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>10.34</td>
<td>15.19</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(4.80)</td>
<td>(10.07)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>87.44</td>
<td>77.23</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(9.01)</td>
<td>(13.47)</td>
</tr>
<tr>
<td><strong>Infant looking at mother</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean frequency</td>
<td>30.55</td>
<td>24.49</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(11.75)</td>
<td>(8.39)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>29.79</td>
<td>28.35</td>
</tr>
<tr>
<td>Std deviation</td>
<td>(11.22)</td>
<td>(12.24)</td>
</tr>
</tbody>
</table>

With respect to durations, there was little difference between the means for the two employment groups, but there was again a large sex difference which was highly significant ($F = 15.61$, df = 1, significance = .0001); as the table shows, the mean for boys was almost 50% higher than that for girls. There was also a significant 3-way interaction between employment group and social class grouping of the mother, and sex of the infant ($F = 6.65$, df = 1, significance = .01). The cross-breakdown shows that the means for boys and girls whose mothers were in the NW group and in social class grouping 3 and 4 were similar at 1077.78 and 1060.00 respectively; however, in
social class grouping 1 and 2, NW mothers treated boys very differently, the mean duration being 1145.56, compared with 680.00 for girls. In the PT group, the effect was reversed; in social class grouping 1 and 2, the means were not too dissimilar at 935.00 for boys and 745.71 for girls, but in social class grouping 3 and 4 the mean for girls was more than twice that for boys at 1372.00 and 683.00 respectively. This complicated interaction seems to suggest that the sexes were treated differently in the higher and lower class groupings, but as this appears to have been an isolated effect, it is also possible that it occurred by chance, given the pattern of other results.

(ii) Mother looking at infant: Mothers in the PT group looked at their infants significantly more often than did mothers in the NW group (F = 4.24, df = 1, significance = .05); however, the NW mothers had a higher mean duration for looking at their infants (F = 9.26, df = 1, significance = .004), an effect which is obviously more meaningful than the frequency of glances. Whilst mothers looked more often at boys, and for longer periods, this effect was not statistically significant.

There was a significant effect due to the social class grouping of the mother in frequency of looking at the infant; the cross-breakdown shows that mothers in social class grouping 3 and 4 had a mean frequency of 15.07 compared with 10.82 for social classes 1 and 2 (F = 3.91, df = 1, significance = .05), but again, as the
durations were not significantly different, the frequency of glances is less meaningful.

(iii) Infant looking at mother: As Table 17 above shows, infants in the NY group looked more often at their mothers than did infants in the PT group, and for longer periods. Analysis of Variance again indicates that whilst the difference in mean frequency was statistically significant (F = 6.02, df = 1, significance = .02), the difference in duration was not. There was a significant sex difference in looking behaviour; boys looked significantly more often at their mothers (F = 4.03, df = 1, significance = .05), and for longer periods (F = 10.96, df = 1, significance = .002).

To progress beyond the statistical effects, these results must be interpreted in conjunction with one another; what was actually happening was that the pattern of looking behaviour was different. Whereas PT mothers were casting more brief glances at their infants, NY mothers looked less often but also looked away less often, and engaged their infants more often, and for longer periods, in eye-to-eye contact, a behaviour which is far more meaningful in terms of social interaction than merely glancing at the infant. Similarly, boys were looking at their mothers more often and for longer periods than girls, which resulted in more periods of mutually rewarding eye-to-eye contact.
4.6 Infant stimulation and Play Behaviour

Infant stimulation is a computed variable incorporating both stimulation with an object such as a toy, and physical stimulation such as tickling. Play behaviour incorporates both the infant reaching for an object and playing with an object.

As Table (18) below indicates, the mean frequency and duration of infant stimulation were higher in the NW group than in the PT group, but the result did not achieve statistical significance. Boys were stimulated significantly more often than girls (\(F = 4.24, \text{ df} = 1, \text{ significance} = .04\)), although the duration was not significantly different.

Table (18) Mean frequencies, durations and standard deviations () for infant stimulation

<table>
<thead>
<tr>
<th>Employment Group</th>
<th>Sex</th>
<th>Infat stimulation</th>
<th>Infant Play Behaviour</th>
</tr>
</thead>
<tbody>
<tr>
<td>NW</td>
<td>PT</td>
<td>Mean frequency</td>
<td>Mean frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22.81)</td>
<td>(13.08)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(27.32)</td>
<td>(9.59)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28.62)</td>
<td>(9.70)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(23.22)</td>
<td>(13.10)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>17.84</td>
<td>15.29</td>
<td>38.57</td>
</tr>
<tr>
<td></td>
<td>(6.12)</td>
<td>(9.95)</td>
<td>(24.92)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10.11)</td>
<td>(20.48)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.73)</td>
<td>(24.60)</td>
</tr>
<tr>
<td>Mean frequency</td>
<td>53.19</td>
<td>45.74</td>
<td>20.15</td>
</tr>
<tr>
<td></td>
<td>(22.81)</td>
<td>(27.32)</td>
<td>(9.70)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28.62)</td>
<td>(13.10)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>17.84</td>
<td>15.29</td>
<td>38.57</td>
</tr>
<tr>
<td></td>
<td>(6.12)</td>
<td>(9.95)</td>
<td>(24.92)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10.11)</td>
<td>(20.48)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.73)</td>
<td>(24.60)</td>
</tr>
</tbody>
</table>

55.60             41.54
(28.62)           (23.22)
(17.85)           (14.46)
(10.11)           (8.73)
(20.15)           (25.40)
(9.70)            (13.10)
(32.67)           (37.29)
(20.48)           (24.60)

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There was, however, a significant interaction between the employment group of the mother and the sex of the infant in the duration of stimulation ($F = 4.34, \text{df} = 1, \text{significance} = .04$). Whereas NW mothers stimulated girls for slightly longer durations than boys, the PT mothers stimulated boys for considerably longer than girls, the mean durations being 10.90 and 19.68 respectively.

The Analysis of Variance showed that there were no significant effects due to the social class grouping of the mother, nor were there any significant interactions.

With respect to play behaviour, the table shows that the mean frequency and duration of play behaviour were both higher in the NW group than in the PT group, and that girls played more often and for longer periods than boys. Analysis of Variance indicates that these differences were not statistically significant, nor were there any significant class effects or interactions.

4.7 Affectionate behaviour

Affectionate behaviour is a computed variable showing the frequency of affectionate behaviours in the dyad, rather than for mother and infant separately. It subsumes mother smiling at infant, infant smiling at mother, mother laughing, infant laughing, mother kissing infant, picking him/her up, hugging him/her, and touching affectionately. Behaviours such as kissing are instantaneous and can have no meaningful durations, consequently the duration of
affectionate behaviour only subsumes hugging, picking up, and touching affectionately.

Table (19) **Mean frequencies, durations and standard deviations ( )**

for affectionate behaviour, per hour of Observation

<table>
<thead>
<tr>
<th>Employment group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>NV</td>
<td>PT</td>
</tr>
<tr>
<td>Mean frequency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(16.33)</td>
</tr>
<tr>
<td>Mean duration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(19.84)</td>
</tr>
</tbody>
</table>

As Table (19) above indicates, there was little difference between the mean frequencies or durations for the two employment groups, but there were again very significant sex differences, in opposing directions, in both frequency ($F = 8.42$, df = 1, sig. = .005), and duration ($F = 5.63$, df = 1, sig. = .02).

The cross-breakdown shows that in both employment groups affectionate behaviours were directed more frequently at boys, but girls were held or cuddled for longer periods, particularly in the NV group. There was also a significant interaction between class and employment group in the frequency of affectionate behaviour ($F = 
4.28, \( df = 1 \), significance = .04). Whereas the means were quite similar in the NV group for both social class groupings (47.28 for class grouping 1 and 2, compared with 46.78 for 3 and 4), in the PT group the mean for social class grouping 3 and 4 was considerably higher at 57.85 than that of 38.07 for grouping 1 and 2.

4.8 Crying

Crying' is a computed variable bringing together the five classifications of crying behaviour (described in Annex 19 of Appendix 1), which, taken individually, were too infrequent to analyse.

As Table (20) below indicates, infants in the NW group had higher mean frequencies and durations for crying behaviour than infants in the PT group. Although girls had a higher mean frequency for crying than boys, their mean duration was lower. Analysis of Variance indicates that none of the main effects, nor their interactions, achieved statistical significance.

<table>
<thead>
<tr>
<th></th>
<th>Employment Group</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NV</td>
<td>PT</td>
</tr>
<tr>
<td>Mean frequency</td>
<td>29.86</td>
<td>24.61</td>
</tr>
<tr>
<td></td>
<td>(23.26)</td>
<td>(15.50)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>15.67</td>
<td>12.70</td>
</tr>
<tr>
<td></td>
<td>(14.47)</td>
<td>(9.25)</td>
</tr>
</tbody>
</table>
4.9 Maternal caretaking behaviour

'Caretaking' is a computed variable subsuming the following maternal behaviours: breast-feeding, bottle-feeding, spoon-feeding, 'burping' the infant, adjusting or changing his/her position, nappy-changing, washing, and soothing the infant.

As Table (21) below shows, there was very little difference between the two employment groups either in mean frequency or duration of caretaking behaviour. The mean frequency for boys was somewhat higher than that for girls, although the durations were very similar.

Table (21) Mean frequencies, durations and standard deviations (1.) for Maternal caretaking behaviour, per hour of Observation

<table>
<thead>
<tr>
<th>Employment group</th>
<th>Sex</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NV</td>
<td>PT</td>
<td>Boys</td>
</tr>
<tr>
<td>Mean frequency</td>
<td>42.59</td>
<td>41.79</td>
<td>45.16</td>
</tr>
<tr>
<td></td>
<td>(18.40)</td>
<td>(17.01)</td>
<td>(20.46)</td>
</tr>
<tr>
<td>Mean duration</td>
<td>30.53</td>
<td>29.29</td>
<td>30.38</td>
</tr>
<tr>
<td></td>
<td>(26.11)</td>
<td>(17.78)</td>
<td>(20.46)</td>
</tr>
</tbody>
</table>

Analysis of Variance indicates that none of the main effects, nor their interactions, were statistically significant.
Summary and Conclusions

Summary of results: A large number of behaviours were examined for significant differences as a function of the mother's employment group, social class grouping, and sex of the infant.

As shown in the summary below (Table 22), there were no significant differences between the two employment groups in Infant communication, Maternal vocalization, Proximity, Stimulation and play, Affectionate behaviour, Crying, or Maternal caretaking behaviour. The only significant differences to emerge between the two employment groups occurred in Looking behaviour. PT mothers looked more often at their infants, but NV mothers looked for longer periods; infants of KV mothers looked more often at their mothers, but there was no significant difference in the duration. Eye-to-eye contact, which might be expected to result from either the infant's or the mother's looking behaviour, occurred significantly more often in the NV group, but the durations did not differ significantly. These results would have been more meaningful if both frequency and durations had differed significantly; as they stand, it is not possible to conclude unequivocally that there were significant differences overall in Looking behaviour as a function of the mother's employment group.

Social class grouping of the mother did not emerge from the analyses as a significant effect, nor did it figure prominently in interactions. In only one analysis, frequency of mother looking at
Table (22) **Hypothesis 14: Summary of baseline differences between NV and PT groups**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Signif. diff. between gps</th>
<th>No signif. diff. between gps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total communication</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Immed. contingency: Vocalization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Immed. contingency: Touch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Delayed contingency: Vocalization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Delayed contingency: Touch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Total Infant Vocalization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Immed. contingency: Vocalization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Immed. contingency: Touch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Delayed contingency: Vocalization</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Delayed contingency: Touch</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Maternal Vocalization: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Maternal Vocalization: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Physical touch: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Physical touch: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Out of sight: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Out of sight: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Out of reach: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Out of reach: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mutual Gaze: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mutual Gaze: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mother looking infant: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Mother looking infant: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant looking mother: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant looking mother: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant stimulation: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant stimulation: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant play: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Infant play: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Affection: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Affection: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Crying: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Crying: Duration</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Caretaking: Frequency</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Caretaking: Duration</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

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infant, was it a significant main effect, but again, the durations did not differ significantly.

Sex of the infant, however, did figure prominently as a significant effect in the results, a recurrent pattern of results being that boys acted and were treated differently from girls. There were significant differences in boys' patterns of communication with their mothers, in maternal vocalization to boys, in both frequency and duration of boys' looking at their mother, in frequency and duration of eye-to-eye contact, frequency and duration of affectionate behaviour towards boys, and frequency of stimulation. There were no significant differences in crying, caretaking, proximity, infant play, or mother looking at infant.

This interesting and unexpected pattern of results clearly warrants further investigation in its own right. Mother-infant interaction may, for example, be depicting only one side of the coin; it could be the case that father-daughter interaction corrects what appears to be an imbalance in favour of boys. Any further research should therefore encompass the additional dimension of father-infant interaction and, if differences are found, seek to establish whether they derive from Freudian postulates or social conditioning. A somewhat esoteric explanation, perhaps, in our present society, is that these were first-born infants, and social mores continue to endow first-born sons with more felicity than daughters.
Conclusions: Hypothesis 14 predicted, purely for the purposes of testing for homogeneity in patterns of social interaction, that there would be significant differences in patterns of mother-infant social interaction between mothers who proposed to work part-time and those who proposed not to work, PRIOR to the onset of such employment. On the basis of the results presented in this section, there is no evidence to support the hypothesis. As the null hypothesis cannot be rejected, these findings are considered to further validate the assumption of homogeneity of the sample.

5 Review of Phase I

The presentation of results from Phase I of the study is now complete. The main aim of Phase I was to test the assumption of homogeneity of samples by examining a wide variety of indicators ante-dating the onset of non-maternal care, as this assumption had previously proved a stumbling-block to the generalizability of research findings into the effects of maternal employment.

In Section 1, the results did not support the hypothesis that there would be significant differences between mothers who proposed to work part-time and those who proposed not to work in terms of selected socio-demographic variables, personality, child-rearing ideology, general and emotional health, pregnancy and childbirth experiences, and attachment to infant.
In Section 3, the results did not support the hypothesis that there would be significant differences in the birth experiences, temperament and developmental status between infants whose mothers proposed to work part-time and those whose mothers proposed not to work.

In Section 4, the results did not support the hypothesis that there would be significantly different patterns of social interaction between mothers who proposed to work part-time and those who proposed not to work, PRIOR to the onset of such employment.

As the results did not support these hypotheses, which, it will be recalled were not theoretically derived but rather were set up in order to test the assumption of homogeneity, the null hypotheses, that there would be no significant differences between the two groups of mothers, their infants, or their early social interaction, could not be rejected. It was therefore concluded that the samples could be construed as homogeneous with respect to the variables examined, in which case, any differences subsequently found on the outcome variables could, with a reasonable degree of confidence, be attributed to the employment status of the mothers.

It was, however, the author's contention, that differences would exist between the two groups of mothers in terms of their career orientation and attitudes to employment. Hypotheses, which were derived from theoretical bases, were therefore set up, which predicted specific differences in these areas. In Section 2,
results were adduced which clearly supported the existence of the hypothesized differences.

6 Postscript to Phase I

Before leaving the issue of homogeneity and proceeding to the results of Phase II, results of further data analyses should be considered at this point, although this involves temporarily breaking the chronological order of the study. At the conclusion of the study, after the results from Phase II had been analysed and reported, the data from Phase I were re-analysed in terms of the mothers' ACTUAL employment status at fifteen months post-partum. This was done in order to allow for the possibility that differences might have existed between the two groups as a function of the mothers' actual employment status which did not show up in analyses in terms of their employment intentions, but which could have exerted an effect either on the mothers' decision about their actual employment status, or on the outcome variables themselves. There might, for example, have been differences in the infants' temperament, such that mothers with more 'difficult' children revised their employment intentions. Alternatively, differences in socio-emotional development might have reflected the infants' temperament rather than the mothers' actual employment status.

With respect to the infants, the re-analyses showed that there were no significant differences between the two groups at three months post-partum as a function of the mothers' actual employment status at fifteen months post-partum, in the following: mental or
psycho-motor development, in the Infant Behaviour Record, Infant Rating Scale, nor on any of the nine subscales of the Infant Temperament Questionnaire or mothers' ratings of infant temperament. With respect to the observational data, there were no significant differences between the two groups on any of the variables incorporated in the analysis of social interaction at three months.

Turning to the mothers, there were no significant differences as a function of the mothers' actual employment status in total or sten scores for anxiety (ASQ), personality (EPI & EP1E), emotional health (GHQ), self-esteem (Rosenberg scale), Attitudes towards a dual role for women (Dalrymple scales), nor in the five factors of the Maternal Attitude Scale (Cohler et al). In terms of socio-demographic variables, a significant difference was found in the mothers' rating of their health in pregnancy (tau c = .26, significance = .02); mothers who subsequently returned to work enjoyed better health in pregnancy than mothers who did not work. The working mothers were also significantly more likely to have breast-fed their infants because they wanted to, rather than because they felt they 'ought to' (Chi-sq = 6.34, significance = .01).

Other differences, as would have been expected, were related to employment; mothers' attitudes to work in pregnancy were significantly different (tau c = .27, sig = .005), as were their work intentions 'tau c = .57, sig = .0001), and the stage at which they would return (Chi sq = 9.93, sig = .04), with more of the
mothers who did return to work stating that they would return when the infant was less than one-year old.

The few differences that were found are considered unlikely to have exerted any influence on the outcome measures, and indeed, given the number of variables analysed, it is possible that they occurred by chance alone.

It is now possible, therefore, to turn to the results of analyses of the outcome variables, namely infant socio-emotional development and maternal satisfaction at fifteen months post-partum, with confidence that every care was taken to ensure that the groups were as homogeneous as possible, and that any differences found in the outcome measures are not the result of confounding pre-existing differences.
CHAPTER 13  RESULTS - PHASE II

Introduction

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1.2 Number of Jobs and Type of Employment
1.3 Number of Hours Worked
1.4 Reasons for taking up Employment
1.5 Reasons for giving up Employment
1.6 Child Care Arrangements

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CHAPTER 13 RESULTS - PHASE II

Introduction

Phase II, it will be recalled, refers to the collection of data for the assessment of differences in the components of the major dependent variables, namely, infant socio-emotional development and maternal satisfaction when the infants were aged fifteen months. Data analyses were performed on the outcome variables as functions of the mothers' intended employment status, actual employment status, family social class grouping, and, where appropriate, sex of the infant. Since no differences were predicted as a function of social class, and results were generally found to be insignificant, results of these analyses are omitted.

As indicated in Chapter 11, sample attrition resulted in the loss of four mothers for the second phase of data collection, 3 from the KW group and 1 from the PT group, leaving a total of 56 mothers and infants, 27 in the KW group and 29 in the PT group. Table (23) below shows the composition of the sample and cell sizes for Phase II analyses. Summaries of analyses are again referred to by number in the text and presented in Appendix 2.

In the next section, before proceeding to results for the outcome variables, the ACTUAL employment status of the mothers at fifteen months post-partum is examined in some detail.
Table (23)  *Composition of sample and cell sizes for Phase II*

**Employment status**

<table>
<thead>
<tr>
<th>Employment intentions:</th>
<th>NW</th>
<th>PT</th>
</tr>
</thead>
<tbody>
<tr>
<td>n = 27</td>
<td>n = 29</td>
<td>N = 56</td>
</tr>
</tbody>
</table>

**Actual employment status:**

Have not worked  Have worked  
n = 29  n = 27  N = 56

**Social class grouping**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>7</td>
<td>24</td>
<td>22</td>
<td>3</td>
</tr>
</tbody>
</table>

N = 56

**Sex of the infant**

Male  Female  
n = 26  n = 28  N = 56

**Cell sizes for analyses**

<table>
<thead>
<tr>
<th>Have EOT worked</th>
<th>Have Worked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>n = 15</td>
<td>n = 14</td>
</tr>
<tr>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>n = 13</td>
<td>n = 14</td>
</tr>
</tbody>
</table>

N = 56

1 **Objective 4** To examine the ACTUAL employment status of the mothers when the infants are aged fifteen months

Data for Objective 4 were taken from the Post-Employment Interview Schedule which was scored and coded in accordance with the scoring key (see Appendix 1, Annex 4), and added into the SIR data-base. Using SPSS the data were cross-tabulated and tested for
statistically significant differences as functions of the mothers' employment group and social class grouping. A summary of the analyses appears as Table (11) of Appendix 2.

1.1 Employment Status

At the point of contact, fifteen months post-partum, a total of 27 mothers had taken paid employment outside the home since having the baby. Of these, 7 (25.92%) were from the FW group and 20 (68.96%) were from the PT group. This difference was statistically significant (Chi-square = 8.72, df = 1, significance = .003).

When the mothers were asked about their employment intentions, the following picture emerged. A total of 22 mothers, 4 (13.79%) from the PT group and 18 (66.67%) from the FW group, had not been employed and had no intention of seeking employment. Of the 16 mothers actually working at the point of contact, 14 intended to continue, of whom 2 (7.4%) came from the FW group and 12 (41.4%) from the PT group. Two mothers, one from each group, intended to stop working. Eight mothers, 3 (11.1%) from the FW group and 5 (17.24%) from the PT group had given up their employment. A further 8 mothers, 2 (7.4%) from the FW group and 6 (20.7%) from the PT group, were not currently working, but they had worked since giving birth and intended to do so again. Two more mothers, one from each group, who had not previously worked, also intended to start work soon.
These figures show that at the point of contact, the majority in each group, 86.21% of the PT group and 66.67% of the NV group, were adhering to their employment intentions stated fifteen months earlier. The association between employment status and intentions was highly significant (Chi-square = 52.5, df = 5, significance = .0001).

No significant differences emerged in the analysis in terms of the social class grouping of the mother.

1.2 Number of jobs and type of employment

In the PT group, 16 of those who had taken employment had only had one job, the other 4 had had two jobs. In the NV group, 6 mothers had had one job, and one mother had had 6 jobs. In this group, the employment taken included a solicitor, a teacher, a bank clerk, an office clerk, two secretarial posts and one shop assistant. In the PT group, the employment included nursing (4 cases), clerical (4), sales assistant (3), teacher (2), receptionist/telephonist (2), barmaid (2), and bank clerk (1). The analyses failed to reveal any systematic relationship between employment group and the number and type of jobs taken.

1.3 Number of hours worked

For those of the NV group who did actually work, the number of hours worked ranged from 12 to 35, each subject working different
hours, the mean being 22.66 hours. For the PT group, the number of hours worked ranged from 8 to 37 with a mean of 17.15 hours, the mode being 8 hours. In both groups, two mothers worked for more than 25 hours per week, this being the upper delimiter of part-time employment for this study. As their actual working hours were 35 or more per week, they are considered to have been working full-time. However, in 3 out of the 4 cases, the employment was temporary and had ceased at the point of contact. In the NV group, the solicitor had worked full-time for 2 months to earn extra money as she found she was pregnant again with their second child; the other NV mother had 'helped out' in her previous job for 3 weeks only. In the PT group, one mother had worked full-time for three months in order to qualify for Maternity Grant; the other mother had effectively changed roles with her partner - she worked full-time and he stayed at home full-time looking after the child, a situation that was working satisfactorily and which they intended to continue.

Given the number of permutations of hours worked, cell sizes were too small for meaningful analysis.

1.4  Reasons for taking up employment

For both groups, the most frequently cited reason for taking employment was 'financial', cited by 9 of 25 in the PT group and 8 of 9 in the NV group who were currently employed or were seeking employment. Overall, 'importance of career' was the next most frequently-cited reason; however, it was the PT group for whom this
was a priority, 8 of the PT group compared with only 1 of the NV group giving this as their reason.

'Desire for adult company' and 'boredom with household routines' were each cited three times by mothers in the PT group only. Although the relationship between employment group and the pattern of responses approached significance (Chi-square = 8.74, df = 4, significance = .06), cell sizes were again very small.

Social class was not a significant influence on the pattern of responses.

1.5 Reasons for giving up employment

Apart from the three mothers working full-time, whose reasons for giving up employment were discussed above, five more mothers had given up work. The remaining mother from the NV group had only worked temporarily in the Christmas season. The four mothers in the PT group who had given up their employment all cited child care difficulties as their main reason. In two cases, the father had been the child's caretaker; one father was "not too happy" looking after the child on Saturdays whilst the mother worked as a cashier, the other father "was unable to cope as the baby woke constantly" on the nights that the mother worked night duty as a nurse. Cell sizes were again too small to test the relationships between employment group, social class, and reasons for giving up work.
1.6 Child Care Arrangements

Mothers who had taken up employment were asked about arrangements for the care of the child in their absence; of the 20 mothers actually in employment at the time (5 in the NV group and 15 in the PT group), the majority (65%) left their infant in the care of a relative. The choice of relative was related to the type of employment undertaken; for evening and night workers (barmaid, office cleaner and night nurse) the 'relative' was the child's father. For daytime employment, except in the case of the couple who had reversed roles, the relative was the child's grandmother. This arrangement accounted for 9 of the mothers in the PT group (60%) and 4 in the NV group (80%). The other NV mother left her infant in the care of a registered childminder, as did 2 of the PT group (13.33%). Three of the PT group (20%) paid a neighbour to look after the infant and one employed a nanny.

Most of the mothers (65%) reported that they were 'very satisfied' or 'quite satisfied' with the child care arrangement, only 2, both in the NV group, were 'not very satisfied'.

There was no significant difference between the groups in the age at which the child was first left with an alternative caretaker, and all the infants were reported to either 'like' or 'love' being with the caretaker. One PT mother had changed to a different childminder because the infant was unhappy, and three PT mothers had changed caretakers because of their own dissatisfaction. At the
point of contact, all the mothers in the NV group, and 80% in the PT group, would have opted for the same arrangement in an 'ideal world' and three in the PT group said that ideally, they would prefer a relative to care for the child, but the difference was not significant.

Cell sizes for the variables discussed in this section were again too small for significance testing.

Having examined the mothers' actual employment status and related variables at fifteen months post-partum, the groups were re-classified for the purposes of subsequent analyses according to whether or not they had taken paid employment since giving birth. As shown in Table (22) above, the group who HAD worked comprised 27 mother-infant dyads, and the group who had NOT worked comprised 29 dyads.

2 Objective 5 To assess the socio-emotional development of the infants at fifteen months of age, in terms of the mothers' perception of the following:

a) Social experience
b) Social skills and sociability
c) Emotional expression
d) Self-punitive, fearful or excessive behaviour
e) Empathy
f) Fear of strangers
g) Separation from mother
Infant socio-emotional development was assessed by extracting and tabulating the relevant data from the Socio-Emotional Development Questionnaire (SEDQ), which was scored in accordance with the Scoring Key described in Annex 5 of Appendix 1, and added to the SIR data-base.

Pearson Correlation coefficients were calculated between the various sub-scales of the SEDQ in order to assess their degree of independence. The correlation coefficients were generally well below .3, and were not statistically significant. An exception was the coefficient between the sub-scales 'Fear of Strangers' and 'Sociability and Social Skills', which was .52. This coefficient indicates that infants showing more fear of strangers were less sociable and socially skilled than infants with less fear of strangers (p = .0001). The weakness of the coefficients suggests that the sub-scales were measuring different aspects of socio-emotional development, and validates the a priori grouping of items into sub-scales without the benefit of factor analysis, due to the smallness of the sample. The correlation matrix is presented as Table (12) of Appendix 2.

Prior to further analysis, histograms were drawn to depict the distribution of the data. The distributions of the Total Score, the
summary scale Emotionality, and the sub-scale Independence were clearly symmetrical. The sub-scale Emotional Expression and the summary scale Emotional Security were roughly symmetrical. There was a slight negative skew to the sub-scales Separation from Mother; Fearful, Self-punitve or Excessive Behaviour; Empathy; and Fear of Strangers. The sub-scales Separation from Mother and Tolerance were clearly negatively skewed.

Numbers for each data-point were, however, very small, and it would be necessary to repeat the exercise with a larger sample in order to place any confidence in the typicality of these distributions in the general population. The histograms appear as Figure 1 of Appendix 3.

Using SPSS, the data were then submitted to statistical analysis of the means and variance; the mean scores and standard deviations are set out in Table (24) below, and the Analyses of Variance are summarized in Tables (13 - 15) of Appendix 2. Scores for the sub-scales a) to j) above are discussed under Objectives 6 and 7 below.

3 Objective 6 To examine any differences in the socio-emotional development of 15-month-old infants whose mothers differed in their future employment intentions when the infants were born.

Analysis of results in terms of the mothers' employment intentions did not, when compared with analyses in terms of actual employment.
status, permit the desired separation of effects across the change from employment intentions to actual employment status.
Consequently, presentation of these results is curtailed as firstly, Hypothesis 16 received only partial support, and secondly, without the desired differentiation of effects, these results are of less interest than the analyses in terms of actual employment status.

Hypothesis 16 predicted that there would be significant differences in the emotional, fear and separation/reunion behaviours of infants whose mothers intended to work part-time, compared with those of infants whose mothers did not intend to work. Mean scores and standard deviations for the sub-scales of the Socio-emotional Development Questionnaire are set out in Table (24) below.

The only significant difference relevant to the above hypothesis was on the sub-scale 'Fearful, self-punitive or excessive behaviour' ($F = 4.31, df = 1, p = .04$). On this scale, as shown in Table (24), infants in the NV group had a higher mean score than infants in the PT group, which indicates that these infants exhibited such behaviour with LESS frequency than infants in the PT group.

Summaries of analyses in terms of employment intentions are presented in Table (13) of Appendix 2.
4 Objective 7 To examine any differences in the socio-emotional development of 15-month-old infants whose mothers differ in their actual employment status at that time.

The major hypotheses being tested in this section are Hypotheses 15 and 17; the former predicted that there would be significant differences in the emotional, fear and separation/reunion behaviours of infants whose mothers work part-time, compared with infants of mothers who do NOT work. Hypothesis 17 predicted that effects would be most pronounced in daughters of mothers who work part-time, and least pronounced in daughters of mothers who do not work.

4.1 Social Experience

The rating of a child's social experience was based on the mother's responses to a number of questions about the frequency of social contact with other young children and adults, and of social activities and outings, to include toddler or playgroups, swimming, and visits to places of interest such as parks, playgrounds, or zoos.

Over half the sample (53.6%) led a full and active social life with social contacts, including peers, at least three times per week. Infants in the working group fared better than those in the non-working group, with 58.6% falling into this category compared with 48.1% of the non-working group.
The differences did not achieve statistical significance as a function of the mothers’ actual employment status, social class grouping of the mother, or the sex of the infant.

4.2 Sociability and Social Skills

A child’s score for Sociability and Social Skills was based on 16 questions to the mother concerning the child’s usual responses to other children in a play situation, behaviour on outings and visits, and responses to both familiar and unfamiliar adults.

The range of scores was 219 - 300 out of a possible total of 300. Table (24) below shows that infants of mothers who HAD worked had a mean score of 267.74, compared with 274.38 for infants of mothers who had NOT worked, indicating that they were less sociable and socially skilled than infants of mothers who had NOT worked. The Analysis of Variance (Table 15 of Appendix 2) shows that actual employment status exerted an effect approaching significance ($F = 3.24$, df = 1, significance = .08). This result provides some support for Hypothesis 15, cited above.

There was also an unexpected effect approaching significance due to the social class grouping of the mother ($F = 3.30$, df = 1, significance = .08). The cross-breakdown shows that infants of mothers in social class grouping 3 and 4 were more sociable and socially skilled, with a mean score of 275.65, compared with those from grouping 1 and 2 who had a mean score of 266.79.
<table>
<thead>
<tr>
<th>Scale</th>
<th>Employment Intention</th>
<th>Employment Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NV</td>
<td>PT</td>
</tr>
<tr>
<td>Sociability</td>
<td>273.19</td>
<td>269.31</td>
</tr>
<tr>
<td>(18.10)</td>
<td>(20.55)</td>
<td>(16.60)</td>
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<td>Social Skills</td>
<td>251.96</td>
<td>252.83</td>
</tr>
<tr>
<td>(20.60)</td>
<td>(14.17)</td>
<td>(19.21)</td>
</tr>
<tr>
<td>Emotional Expression</td>
<td>251.96</td>
<td>252.83</td>
</tr>
<tr>
<td>(20.60)</td>
<td>(14.17)</td>
<td>(19.21)</td>
</tr>
<tr>
<td>Fearful, Self-punitive</td>
<td>278.74</td>
<td>267.86</td>
</tr>
<tr>
<td>(15.30)</td>
<td>(21.41)</td>
<td>(17.83)</td>
</tr>
<tr>
<td>Excessive Behaviour</td>
<td>155.36</td>
<td>211.86</td>
</tr>
<tr>
<td>(61.73)</td>
<td>(62.22)</td>
<td>(63.41)</td>
</tr>
<tr>
<td>Total Emotionality</td>
<td>257.89</td>
<td>254.97</td>
</tr>
<tr>
<td>(12.90)</td>
<td>(12.58)</td>
<td>(11.74)</td>
</tr>
<tr>
<td>Fear of Strangers</td>
<td>234.15</td>
<td>229.76</td>
</tr>
<tr>
<td>(39.70)</td>
<td>(47.09)</td>
<td>(40.03)</td>
</tr>
<tr>
<td>Separation from Mother</td>
<td>269.04</td>
<td>261.31</td>
</tr>
<tr>
<td>(32.31)</td>
<td>(36.81)</td>
<td>(39.77)</td>
</tr>
<tr>
<td>Tolerance for new Routines</td>
<td>274.96</td>
<td>246.24</td>
</tr>
<tr>
<td>(25.51)</td>
<td>(40.57)</td>
<td>(37.11)</td>
</tr>
<tr>
<td>Independence</td>
<td>240.96</td>
<td>249.21</td>
</tr>
<tr>
<td>(25.19)</td>
<td>(24.67)</td>
<td>(26.77)</td>
</tr>
<tr>
<td>Total Emotional</td>
<td>252.04</td>
<td>241.55</td>
</tr>
<tr>
<td>Security</td>
<td>(23.49)</td>
<td>(23.14)</td>
</tr>
</tbody>
</table>
This result suggests that there may be different norms for infant social behaviour according to class, which are transmitted at a very early age, although their nature can only be surmised without further research; possibly infants in the higher classes are discouraged from engaging in the type of social interaction reported in this section.

For both sexes, as shown in Figure (1) below, the mean score was lower if the mother had worked than if she had not worked, although the interaction was not significant; there was no evidence to support the hypothesis that girls would be more affected than boys.

Figure (1) Total Sociability and Social Skills

Relationship between Sex and Actual Employment Status

[Graph showing the relationship between sex and employment status with data points for boys and girls.]
There was a very significant interaction between actual employment status, social class and sex of the infant (F = 14.86, df = 1, significance = .0001), an interaction that was also found in the analysis in terms of mothers' employment intentions. The cross-breakdown shows that the most sociable and socially skilled were boys whose mothers had worked and girls whose mothers had not worked, both in social class grouping 3 and 4, the mean scores being 282.13 and 280.50 respectively. The least sociable and socially skilled were girls whose mothers had worked and were in social class grouping 1 and 2, their mean score being 240.20. This result suggests a more complicated pattern than that proposed above, for if class-related norms do exist, then they would seem also to be sex-related; it might, for example, be the case that behaviours labelled as aggressive and non-desirable in girls would be perceived as naturally masculine behaviour in boys, and therefore not discouraged, particularly in social class grouping 3 and 4.

4.3 Emotional Expression

The sub-scale Emotional Expression was based on mothers' responses to 18 questions on the range and frequency of different emotional expressions.

The range of scores for this sub-scale was 169 - 283 out of a possible total of 300, the mean score for infants whose mothers had worked, as shown in Table(24) above, was slightly, but not
significantly, higher at 253.11 than that of 251.76 for infants whose mothers had NOT worked. There was, however, a significant effect due to the sex of the infant ($F = 5.50$, $df = 1$, significance $= .02$). The cross-breakdown shows that boys had a higher mean score (257.67) than girls (246.35), indicating a greater range of emotional behaviours, both positive (such as smiling or laughing) as well as negative (such as hitting or kicking). This might again be reflecting different maternal expectations of appropriate masculine behaviour, rather than underlying sex differences.

Figure (2)  
Emotional Expression  
Interaction between Sex and Actual Employment Status

In the interaction between employment group and sex of the infant, depicted in Figure (2) above, boys in the non-working group had a
higher mean score (257.20) than those in the working group (255.08). For girls, the opposite occurred; girls in the working group had a higher mean score (251.24) than those in the non-working group (245.42). As already indicated, the higher scores included more negative or non-adaptive behaviours, but whilst the result was in the direction predicted in Hypothesis 17, it was not statistically significant.

4.4 Self-punitive, fearful or excessive behaviour

The sub-scale Self-punitive, fearful or excessive behaviour was based on responses to 12 questions about the frequency of such behaviours.

The range of scores for this sub-scale was 217 - 300 out of a possible total of 300. Table (24) shows that, as predicted in Hypothesis 15, the mean score for infants whose mothers had NOT worked was higher at 274.41 than that of 271.70 for infants whose mothers HAD worked, which indicates that the former exhibited such behaviours with LESS frequency than infants whose mothers HAD worked. Analysis of variance indicates that the effect was not statistically significant, although there was a significant difference in the analysis in terms of employment intentions, but in view of the significant interactions reported below, not too much importance is attached to this finding.

Overall, the majority of children did not exhibit such behaviours;
amongst those that did, the most common behaviours, regardless of
group, were 'waking at night for no apparent reason other than
dreams', 'being afraid of unfamiliar places', 'being afraid of
certain objects' such as vacuum cleaners or hair dryers,
'repeatedly banging head on floor or furniture', and 'cannot be
comforted when upset'. With the exception of the last example,
such behaviours were more frequent in the working group than in
the non-working group.

The interaction between employment status and sex of the infant,
depicted in Figure (3) below, was statistically significant ($F =
5.90, df = 1, significance = .02$), with the most disturbed
behaviours occurring in girls whose mothers HAD worked and the
least occurring in girls whose mothers had NOT worked.

Figure (3) Fearful, Self-punitive, or Excessive Behaviour
Interaction between Sex and Actual Employment Status
This interaction was also found in the analysis in terms of mothers' employment intentions, as indicated in Table (14) of Appendix 2. This result clearly supports Hypothesis 17, which predicted that effects would be most pronounced in daughters of mothers who work part-time, and least pronounced in daughters of mothers who do NOT work.

Whilst social class and sex of the infant did not, by themselves, exert main effects, there was a very significant two-way interaction between them (F = 6.59, df = 1, significance = .01).

Figure (4) Fearful, Self-punitive, or Excessive Behaviour

Interaction between Sex and Social Class

Social Class 1 & 2  Social Class 3 & 4
This interaction, depicted graphically in Figure (4) above, indicates that the target behaviours occur most frequently in boys whose mothers come from social classes 3 and 4 (with a mean of 264.45, s.d. = 13.79), and in girls whose mothers come from social classes 1 and 2 (with a mean of 268.47, s.d. = 24.19). It seems likely that this interaction is reflecting a class-related difference, either in the different treatment of the sexes, or in the mothers' expectations of them, rather than an underlying sex difference.

The emergence of a significant three-way interaction between employment status, social class grouping and sex of the infant (F = 6.31, df = 1, significance = .02) indicates that this effect is even more strongly marked when social class grouping is taken into account; the cross-breakdown shows that the most disturbed behaviours are found in girls whose mothers come from social class grouping 1 and 2 and who HAVE worked (with a mean of 247.00), and the least are found in girls of the same social class grouping whose mothers have NOT worked (with a mean of 282.44).

As none of the main effects were statistically significant, and bearing in mind that mothers in social classes 1 and 2 tended to work for career rather than financial reasons, this result seems to suggest a link between the meaning of a mother's employment and its effects on the infants, a point that will be discussed further in the next chapter.
4.5 Empathy

The Empathy sub-scale was based on the frequency with which an infant expressed concern when the mother, or another child, was hurt or upset, or when a toy or object was broken. According to maternal reports, approximately half the infants were capable of empathy at fifteen months, and it was most likely to occur towards the mother.

The range of scores for this sub-scale was 0 - 300 out of a possible score of 300; as Table (24) above shows, infants of mothers who HAD worked had a mean score of 216.04 compared with a mean of 182.04 for infants of mothers who had NOT worked, indicating that the former showed a greater capacity to empathize. This effect was statistically significant ($F = 3.97$, df =1, significance = .05), and was uncontaminated by any effects due to the social class grouping of the mother or the sex of the infant.

The interaction between sex and employment status, depicted in Figure (5) below, shows that infants of mothers who HAD worked had a higher mean score, indicating a greater capacity to empathize, than infants of mothers who had NOT worked, although the result was not statistically significant.

It must be stated that this sub-scale was the weakest in the SEDQ, being based on only three questions, and as Table (23) shows, the standard deviations were very large, possibly due to the fact that
only half of the infants were reportedly able to empathize. This could either be a reflection of the weakness of the scale, or it may be the case that infants of this age are not normally capable of empathy. It would be of interest to pursue the point, expanding on the number of indicators, to identify at what age the expression of empathy emerges, and whether there are any sex differences either in the age at which it emerges or in its quantifiable expression. Alternatively, this sub-scale could be merged with that for Emotional Expression.

**Figure (5) Empathy**

Interaction between Sex and Actual Employment Status
4.6 Total Emotionality

The summary scale Emotionality was derived from the combined responses to the sub-scales Emotional expression; Self-punitive, fearful, or excessive behaviour; and Empathy.

The range of scores for this summary scale was 231 - 279; as Table (24) shows, the mean score for infants of mothers who HAD worked was very similar to that for infants of mothers who had NOT worked. Analysis of Variance indicates (Table 15 of Appendix 2) that none of the main effects were statistically significant. This result does not, therefore support Hypothesis 15.

There was however, a very significant interaction between employment status of the mother and sex of the infant (F = 9.30, df = 1, significance = .004). As Figure (c) below shows, the mean score for boys whose mothers HAD worked was higher (262.71) than that for boys whose mothers had NOT worked (253.63). For girls, the effect was reversed; girls whose mothers had NOT worked had a higher mean (256.92) than girls whose mothers HAD worked (250.38). As a lower score indicates a smaller range of social behaviours and/or a number of self-punitive, fearful or excessive behaviours, this result clearly supports the prediction (Hypothesis 17) that any effects would be most pronounced in daughters of mothers who work part-time.
When social class is taken into account, the same effect is observed; the significant three-way interaction between employment status, social class and sex of the infant ($F = 4.01, \text{df} = 1, \text{significance} = .05$) shows that the highest mean score (265.00) is found in boys with mothers in social class grouping 1 and 2 who HAVE worked. The lowest mean score (240.60) is found in girls whose mothers are in the same social class grouping and who have also worked.

4.7 Fear of Strangers

The sub-scale Fear of Strangers was based on maternal responses to questions about the frequency of adaptive and non-adaptive
behaviours towards strangers.

The range of scores for this sub-scale was 122 - 300 out of a possible total of 300. As Table (24) shows, the mean score for infants whose mothers had worked was lower at 226.70 than that for infants whose mothers had not worked (236.69). This indicates a greater fear of strangers in infants of working mothers than in infants of non-working mothers; according to maternal responses, the differences between the two groups occur in the frequency with which an infant 'clings to mother if approached by an unfamiliar person', is shy or even 'hides from strangers'. Whilst this result was in the direction predicted in Hypothesis 15, the effect failed to achieve statistical significance.

The interaction between employment status and sex of the infant, depicted in Figure (7) below, approached significance ($F = 2.91$, df = 1, significance = .08). The cross-breakdown shows that the lowest mean (196.60), indicating the greatest fear of strangers, occurred in girls whose mothers had worked, and the highest mean, indicating the least fear, occurred in girls whose mothers had not worked. This result was clearly in the direction predicted in Hypothesis 17. For boys, the effect was reversed; boys whose mothers had not worked showed more fear than boys whose mothers had worked. A possible explanation for the different effect is that the greater number of social contacts occasioned by the mothers' employment serves to reduce fear of strangers for boys, whereas for girls,
possibly this exposure serves to enhance their fear in the absence of their mothers.

Figure (7)  
Fear of Strangers

Interaction between Sex and Actual Employment Status

4.8 Separation from mother

The sub-scale Separation from mother was based on maternal responses to questions about the frequency of certain behaviours when the infant is left alone in a room, or with a familiar or unfamiliar babysitter, and behaviour towards the mother on her return.
The range of scores for this sub-scale was 150 - 300 out of a possible total of 300. As Table (24) above shows, the mean for infants whose mothers had NOT worked was lower than that for infants whose mothers had worked, indicating that, contrary to prediction, these infants showed more upset at separation from and reunion with the mother than infants whose mothers HAD worked, but the difference was not statistically significant.

Boys showed slightly more upset than girls, the mean being 262.40, compared with 266.08 for girls, but the effect was not significant. The mean for boys was further depressed if the mother had NOT worked, falling to 255.19, whereas for girls, the means were similar whether or not the mother worked.

Figure (5)  
Separation from Mother  
Interaction between Sex and Actual Employment Status
This interaction, depicted in Figure (8), runs counter to the hypothesized direction, but it was not statistically significant.

These findings indicate that in this sample, there was no evidence that maternal employment resulted in increased distress at separation from the mother.

4.9 Tolerance of departures from normal routines

'Tolerance of departures from normal routines' is a sub-scale based on maternal responses to 10 questions about the infant's behaviour when, for example, s/he has to eat or sleep in unfamiliar surroundings, visit the doctor or clinic, or when someone other than the parent feeds, changes, bathes or puts him/her to bed.

The range of scores for this sub-scale was 150 - 300 out of a possible total of 300. Table (24) above shows that infants of mothers who HAD worked had a lower mean score (258.67) than infants whose mothers had NOT worked (263.41), but the difference was not statistically significant. On this sub-scale, a lower score indicates less tolerance of departures from normal routines.

Whilst sex of the infant did not exert a significant effect, there was a very weak interaction, depicted in Figure (9) below, between sex and the employment status of the mother ($F = 2.91, df = 1$, significance = .09). The cross-breakdown shows that boys whose mothers had NOT worked were less tolerant (with a mean of 261.00)
than boys whose mothers HAD worked; for girls, however, the opposite occurred. Girls whose mothers HAD worked were the least tolerant (with a mean of 241.31), compared with a mean of 266.38 for girls whose mothers had NOT worked.

Figure (9) Tolerance of Departures from Normal Routines

Interaction between Sex and Actual Employment Status

This result again suggests that girls were more affected by the mothers' employment status, as predicted in Hypothesis 17.

4.10 Independence

The sub-scale 'Independence' was based on a total of 12 questions about the frequency with which an infant exhibited independence.
from the mother in taking care of him/her self. The questions covered feeding, indicating need for toilet or potty, behaviour during bath and hair-washing, 'exploring' in parks or shops if mother is nearby, and playing happily alone when mother is busy.

The range of scores for Independence was 192 -300 out of a possible score of 300; as Table (24) shows, the means for the two groups were virtually the same. Boys again had a lower mean (240.60) than girls (250.58), and the mean was little affected by whether or not the mother had worked. These results, which did not achieve statistical significance, did not, therefore, support the hypotheses.

4.11 Emotional Security

The four sub-scales Fear of Strangers, Separation from Mother, Tolerance of Departures from Normal Routines, and Independence were summated to provide the composite indicator Emotional Security.

The summation yielded a range of scores from 198 - 293 out of a possible total of 300; on this sub-scale, low scores indicate LESS emotional security. As Table (24) above shows, the mean score for infants of mothers who had worked was, as predicted, lower at 243.52 than the mean of 249.46 for infants whose mothers had not worked, indicating that the former were LESS emotionally secure than infants whose mothers had not worked.
There was very little difference between the means for boys and girls. However, in the interaction between sex and employment status, depicted in Figure (10), results were in the predicted direction; girls whose mothers HAD worked had the lowest mean score (238.85), whereas girls whose mothers had NOT worked had the highest mean (255.46). However, Analysis of Variance, summarized in Table (14) of Appendix 2, shows that none of the main effects, nor their interactions, achieved statistical significance. Consequently, whilst the results were in the predicted directions, they do not provide support for Hypotheses 15 and 17.

Figure (10)  

**Emotional Security**

Interaction between Sex and Actual Employment Status

4.12 Problems or 'Areas of Difficulty'

The hypothesis being tested in this section is Hypothesis 16, which predicted that mothers who do NOT work would perceive and report fewer problems or 'areas of difficulty' than mothers who work part-
time. Data on problems or 'areas of difficulty' were extracted from responses on the Socio-emotional Development Questionnaire. In addition to data on the number and types of difficulty encountered, data were gathered and analysed in respect of the frequency of the difficulty, the mother's perception of the severity of the difficulty, and the level of advice, if any, sought to cope with the difficulty. Responses were scored and coded in accordance with the scoring keys contained in Appendix 1 and added to the database. The data were subsequently cross-tabulated in terms of the mothers' actual employment status, social class grouping, and sex of the infant. Summaries of the results appear as Table (15) of Appendix 2.

The general problems or 'areas of difficulty' to emerge from the analyses were:

a) Behaviour  
b) Sleeping  
c) Eating  
d) Health  
e) Toilet training  
f) Development  
g) Management

A summary of the number of citations under each category appears in Table (25) below. It will be noted from the total of citations for each category that numbers were very small, and, when further divided for frequency, severity and level of advice sought, generally became too small for significance testing.
### Table (25): 'Areas of Difficulty'

**Summary of Number of Citations**

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<th>Area of Difficulty</th>
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<th>Have Worked</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Behaviour</td>
<td>9</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>(31.0%)</td>
<td>(40.7%)</td>
<td>(35.7%)</td>
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<tr>
<td>Sleeping</td>
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<td></td>
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<td>(29.6%)</td>
<td>(23.2%)</td>
</tr>
<tr>
<td>Eating</td>
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<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(17.2%)</td>
<td>(18.5%)</td>
<td>(17.9%)</td>
</tr>
<tr>
<td>Health</td>
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<td>5</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(17.2%)</td>
<td>(18.5%)</td>
<td>(17.9%)</td>
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<tr>
<td>Toilet Training</td>
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<td></td>
<td>(10.3%)</td>
<td>(14.8%)</td>
<td>(12.5%)</td>
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<td>Development</td>
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<td>4</td>
</tr>
<tr>
<td></td>
<td>(3.4%)</td>
<td>(11.1%)</td>
<td>(7.1%)</td>
</tr>
<tr>
<td>Management</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(3.4%)</td>
<td>(7.4%)</td>
<td>(5.4%)</td>
</tr>
</tbody>
</table>

1) **Behaviour**

Behaviour was the most commonly reported 'area of difficulty', being cited by 9 (31.0%) of those who had DGI worked and 11 (40.7%)
of those who HAD worked but the difference was not statistically significant. Of the behaviours causing concern to mothers, the most common were whining or grizzling; temper tantrums; biting, pinching or hitting other children; clinging to or following mother. There were no significant differences in the frequency, perceived severity or level of advice sought for the problem, nor were there any significant social class or sex differences.

b) Sleeping

Sleeping was perceived as a problem by 23.2% of the sample, and was again cited by more mothers in the group who HAD worked than in the group who had NOT worked, although the difference was not statistically significant.

There was, however, a significant difference between the two groups in the frequency of the problem; of those reporting the difficulty, 87.5% in the group who HAD worked, compared with 20% in the group who had NOT worked, rated the problem as 'constant', and 12.5% compared with 60% in the group who had NOT worked rated it as 'frequent' (tau c = .66, significance = .005).

There was no significant difference between the two groups in the perceived severity of the problem. Most mothers reporting the difficulty (52.6%) had not sought any advice, but those mothers for whom it was perceived as a major problem had consulted their G.P. for advice. One mother in the group who HAD worked regularly administered medicine at night to make the child sleep, but the
most common 'solution' to the problem for mothers in both groups was to take the infant into the parents' bed. For another working mother the 'solution' was to sleep with the child in a single bed in the spare room "so as not to disturb my husband who has to get up early for work".

There were no significant differences in sleeping difficulties attributable to the social class grouping of the mothers or to the sex of the infant.

c) Eating

Eating was viewed as an 'area of difficulty' by 10 (17.9%) of the sample, comprising 5 from each group, there being no significant difference in reported frequency. Eating did not cause any major concern to the mothers, and most mothers, (7 out of the 10 reporting), had not sought any advice. One mother in the group who had NOT worked had been referred to hospital by her G.P. as a minor operation was required. None of the differences between the two groups achieved statistical significance, nor were there any significant differences as a function of the social class grouping of the mother or the sex of the infant.

d) Health

The health of the infant was cited as an 'area of difficulty' by 10 mothers (17.9% of the sample), five from each group, and again,
there was no difference in reported frequency. The problems caused more concern in the group who HAD worked, the severity of the health difficulty being rated as 'major, of considerable concern' by 3 mothers in the group who HAD worked, compared with only 1 in the group who had NOT worked. All 3 infants in the group who HAD worked, and 1 in the group who had NOT worked, had been referred to hospital specialists by the G.P. For the mother in the group who had NOT worked, the cause of concern was a squint which was expected to correct itself; in the group who HAD worked one infant also had a squint which necessitated the wearing of spectacles. One child suffered febrile convulsions whenever she ran a temperature, and the other child suffered ataxia with fever and was undergoing tests for ataxia telengentaria, a rare progressive disease of the nervous system.

None of the differences between the two employment groups achieved statistical significance, nor were there any differences which could be attributed either to the social class grouping of the mother or to the sex of the infant.

e) Toilet Training

Toilet training was perceived as an 'area of difficulty' by 7 mothers (12.5%) in the sample, of whom 3 (10.3%) were in the group who had NOT worked and 4 (14.8%) were in the group who HAD worked. None of the mothers considered toilet training to be a major problem and most of those reporting (71.4%) had not sought any
advice. None of the differences achieved statistical significance, nor were there any significant differences as a function of the sex of the infant.

f) Development

The infant's development was cited as an 'area of difficulty' by 4 of the sample (7.1%), of whom 1 came from the group who had NOT worked and 3 from the group who HAD worked. The problem for the mother in the group who had NOT worked was her infant's slowness in learning to walk, but she had not sought any specialised advice. In the group who HAD worked, the concern for 2 mothers was language development, one mother reporting that her infant had only three words of speech at fifteen months. Only one mother had sought advice, consulting friends and relatives. Walking was slow to develop in the third case; the mother had sought advice and had been referred to a specialist who found no cause for concern.

There were no significant differences in the number of citations, frequency, perceived severity, or level of advice which could be attributed to the mother's employment group or social class, or to the sex of the infant.

g) Management

Management of the infant was perceived as an 'area of difficulty' by 3 of the sample (5.4%), of whom 1 came from the group who had
NOT worked and 2 from the group who HAD worked. In each case the mother reported being unable to stop the infant 'doing things' - for 2 mothers temper tantrums were the basic problem, for the third it was being aggressive to other children by pinching and hair-pulling. Only the latter, from the working group, had sought advice from her local clinic and had been told that this was 'quite normal' behaviour and that she should not worry about trying to stop it.

There were no statistically significant differences in number of citations, frequency, perceived severity or level of advice sought as a function of employment group or social class grouping of the mother, nor as a function of the sex of the infant.

Summary and conclusion: With the exception of Eating and Health, which might be termed less behavioural than the other 'areas', more citations were received for each 'area of difficulty' from the group who HAD worked than from the group who had NOT worked. These findings are in the direction predicted in Hypothesis 18, and whilst none were statistically significant as the data points were very small, they are psychologically important in the present context.

4.12 Socio-Emotional Development: Summary and Conclusions

Hypothesis 16: This predicted that there would be significant differences in the emotional, fear and separation/reunion
behaviours of infants whose mothers' employment intentions were to work part-time, compared with infants whose mothers intentions were not to work.

Whilst results for the sub-scales were in the predicted direction, the only significant difference relevant to the hypothesis was on the sub-scale 'Fearful, Self-punitive or Excessive behaviour', consequently Hypothesis 16 received only partial support.

Hypothesis 15: This predicted that there would be significant differences in the emotional, fear and separation/reunion behaviours of infants whose mothers work part-time, compared with infants whose mothers do not work.

The results presented above show that infants whose mothers HAD worked fared less well than infants whose mothers had NOT worked, the results being in the predicted direction for Sociability and Social Skills; Emotional Expression; Fearful, Self-punitive or Excessive behaviour; Fear of strangers; and Tolerance. On the sub-scale Separation from Mother the result ran counter to prediction. Hypothesis 15 cannot, therefore, be supported.

Hypothesis 17: This predicted that effects would be most pronounced in daughters of mothers who work part-time, and least pronounced in daughters of mothers who do not work.

Significant interactions were found between employment group of the
mother and sex of the infant on the sub-scale Fearful, Self-punitive or Excessive Behaviour and the summary scale Emotionality. Results for Emotional Expression, Fear of Strangers, and the summary scale Emotional Security were in the predicted direction, although not statistically significant.

These results show that where effects were found, they were generally more pronounced in daughters of mothers who work part-time, a finding that supports Hypothesis 17.

Hypothesis 18: This predicted that mothers who do NOT work would perceive and report fewer problems or 'areas of difficulty' than mothers who work part-time. The total number of difficulties cited by mothers who had NOT worked was 29, compared with 38 by mothers in the working group. Whilst this result was in the predicted direction, it was not statistically significant and cannot therefore be deemed to support the Hypothesis.

Conclusions:

(i) The fact that the Socio-emotional Development Questionnaire was capable of identifying differences in such young children was very gratifying, and suggests that it should be utilised further, with larger samples, to establish its psychometric properties.

(ii) It will have been noted that a number of effects were in the
predicted direction but failed to achieve statistical significance. It seems likely that this is due to the size of the sample, although it would not have been possible for the author to have managed a larger sample single-handed in the present study.

(iii) As the two groups of infants were previously found to be homogeneous on a wide variety of baseline indicators, the effects found may be attributed, with a reasonable degree of confidence, to the employment status of the mother.

(iv) Whilst the majority of mothers adhered to their employment intentions, approximately 33% of mothers in the NV group and 15% in the PT group did not. If actual employment status had been found to have exerted a more significant effect than employment intentions, it would have been possible to separate out the effects. Since this was not the case, it has not proved possible to determine whether it was the original employment intention, the actual employment status, or any change between the two, which brought about the observed effects.

Thus far in this chapter, the actual employment status of mothers at fifteen months post-partum has been examined and results have been presented for the assessment of differences in the outcome variable associated with their infants, namely, infant socio-emotional development.
Attention is now turned to the outcome variable associated with the mothers themselves, namely, maternal satisfaction at fifteen months post-partum. In the following sections, results will be presented for the assessment of differences in maternal satisfaction in order to determine whether hypotheses relating maternal satisfaction to the congruence between career orientation and employment status can be supported. Finally, socio-emotional development will be briefly re-introduced in the light of findings on congruence in order to examine whether any differences occur in infants when the data are re-analysed as a function of the mother’s position on the congruence dimension.

5 Objective 8 To assess and compare maternal satisfaction at the end of the period of contact in terms of:
   a) Career orientation
   b) Congruence between career orientation and actual employment status
   c) Motherhood importance
   d) Maternal Welfare
   e) Ratings of satisfaction

In Chapter 9, the author contended that maternal satisfaction would not be a simple function of the mother’s employment status, but rather that it would be related to the congruence between her employment status and level of career orientation. In the following sections, mothers’ career orientation is assessed, then related to actual employment status to determine which mothers can be
designated congruent and which incongruent. The major components of maternal satisfaction, which are defined as motherhood importance, maternal welfare and mothers' ratings of their satisfaction, are then examined, together with the author's ratings of maternal satisfaction based on the interview as a whole, before assessing support for the specific hypotheses.

The data were extracted from subjects' responses to the Post-Employment Interview Schedule, tabulated and added to the database. Using SPSS, the data were cross-tabulated and tested for statistically significant differences in terms of the mothers' original employment intentions, their actual employment status at fifteen-months post-partum, social class grouping, and congruence. As in the previous sections, analyses in terms of social class grouping are not presented as they were generally found to be insignificant; analyses in terms of employment intentions are only briefly mentioned where significant differences were found, as they were of less interest than analyses in terms of actual employment status or congruence. Tables 16-22 of Appendix 2 summarize the data presented in this section.

5.1 Career Orientation

In order to assess career orientation, mothers were asked to express their feelings about work, work importance and job satisfaction, unfulfilled work ambitions, and satisfaction with current employment status. Based on their responses to these
questions, the author then rated the mother's level of career orientation. The data presented in this sub-section are summarized in Table (16) of Appendix 2.

(i) Feelings about work: Mothers were asked what they missed most about working whilst they were at home full-time with their babies. In both employment analyses, 'money' was the factor most frequently cited by both groups, accounting for 35.7% of the sample. The second most frequently cited factor for both groups was 'adult company', accounting for 26.8%. 'Getting out of the house' was more important in both analyses for mothers intending to or actually working, being cited by 17.2% of the FT group, compared with only 4.2% of the NV group, and by 14.8% of those who had worked, compared with 6.9% of those who had NOT worked. 'Intrinsic interest of the job' was cited by equal numbers in each group, and figured fourth in frequency, closely followed by 'feeling of doing something worthwhile'. Three mothers, all in the NV or group which had NOT worked, stated that there was 'nothing' they missed about work.

These differences were not statistically significant, but there was a significant difference in how often mothers thought about, or missed work. In the analysis in terms of employment Intentions, more of the FT group claimed to think about or miss work 'frequently' or 'constantly' than the NV group (tau c = .37, significance = .005), a difference that occurred in attenuated form in the analysis in terms of the mothers' actual employment status.
(tau c = .34, significance = .009). Social class did not differentiate between the patterns of response.

When mothers were asked what is, or was, bad about working, analysis in terms of employment INTENTIONS showed that the PT group were more likely to respond in terms of work being 'tiring' (34.5%) or leaving 'no time for leisure' (6.9%) whereas NONE of the EW group gave these responses (Chi-square = 16.341, df = 7, significance = .02).

In the analysis in terms of mothers' ACTUAL employment status, most mothers said that the worst thing about working was 'travelling' (19.6%), followed by 'tiring' (17.9%) and 'boring routines' (12.5%). There was not, however, a systematic relationship between actual employment status and pattern of responses nor between social class and pattern of response.

(ii) Work importance and job satisfaction: Mothers were asked to rate how important work had been in their lives on a five-point scale from 'of no importance' to 'very important'. More of the PT group (82.8%) rated work as 'quite important' or 'very important' than did the EW group (65.5%) and more of the EW group rated work as being 'not very important' or 'of no importance' (25.9% of EW, 6.9% of PT), the difference being weakly significant (tau c = .2, significance = .08). In the analysis in terms of ACTUAL employment status, the same pattern of responses emerged but the differences were less pronounced and did not achieve statistical significance.
Analysis in terms of social class groupings did not significantly differentiate.

When asked to rate the satisfaction they got from working, there were no significant differences between employment groups and social class groupings, the modal response being 'quite a lot'.

(iii) Unfulfilled work ambitions: In the analysis in terms of employment intentions, 55.2% of the PT group had unfulfilled work ambitions compared with 22.2% of the NV group, the difference being statistically significant (Chi-square = 5.06, df = 1, significance = .02). When the responses were re-tabulated in terms of the mothers' actual employment status, the large difference between the two groups was almost eradicated, such that 37.9% of those who had NOT taken employment and 40.7% of those who HAD taken employment had unfulfilled work ambitions. Analysis in terms of social class also failed to differentiate.

(iv) Satisfaction with current employment status: Mothers were asked whether they were satisfied with their current employment status at fifteen months post-partum. Of the 29 who had NOT taken employment, 31% would have preferred to work. Of the 27 who HAD taken employment since giving birth, only 3.7% would have preferred NOT to work.

In terms of their employment intentions, 2 (7.4%) of the NV group and 10 (34.5%) of the PT group were NOT working and would prefer to
work. Of those not currently working 22 (81.5%) of the NV group and 6 (20.7%) of the PT group were 'quite happy not working'. Of those who WERE working, 2 (7.4%) of the NV group and 13 (44.8%) of the PT group were 'quite happy working'. Only one working mother, from the NV group, was working but would prefer not to work. These differences were highly significant \( \text{Chi-square} = 23.5, \text{df} = 3, \text{significance} = .0001 \), whereas the analysis in terms of social class groupings failed to differentiate.

(v) **Author's ratings of career orientation**: Ratings of career orientation were made on a 5-point scale ranging from 'not important' to 'very important'; and were based on responses to the issues discussed in (i) to (iv) above. Whilst it might, at first sight, appear that the author would be biased in rating career orientation, knowing the mothers' original employment intentions, it must be stressed that career orientation is not necessarily related to actual employment status, as mothers who have little or no enthusiasm for a career are frequently forced to take employment from financial necessity, and conversely, some mothers remain at home to care for their children when they would prefer to continue with their careers. In addition, a retrospective 'spot-check' was made on a sub-set of the responses by a person 'blind' as to which group mothers belonged, in order to assess reliability of ratings. Percentage concordance was extremely high, the average being 98.4%.

In the analysis in terms of employment INTENTIONS, the author rated a career as 'quite important' or 'very important' to 24 mothers.
(62.7%) in the PT group, compared with 12 (44.4%) of the NY group. At the other end of the scale, a career was rated as 'of no importance' or 'not very important' to 3 of the PT group (10.3%) compared with 9 (33.3%) of the NY group. These differences were very significant (tau c = - .38, significance = .006).

When the data were analysed in terms of the mothers' ACTUAL employment status, a similar pattern emerged. A career was 'quite important' or 'very important' to 21 (77.7%) of those who HAD taken employment, compared with 15 (51.7%) of those who had NOT taken employment. A career was of little or no importance to 4 (14.8%) of those who HAD taken employment, compared with 8 (27.5%) of those who had NOT taken employment (tau c = .3, significance = .02).

In the analysis in terms of social class grouping of the mother, a career was rated as 'quite important' or 'very important' to significantly more mothers in social class grouping 1 and 2 than in 3 and 4 (tau c = -.25, significance = .05).

These results show that a career was important to more of the mothers who intended to or had actually worked at the point of contact, than to those who had NOT worked, although there were non-working mothers to whom a career was equally important, and working mothers to whom a career was not important. Whilst it could be inferred from these results that the mothers who chose not to work had perhaps reached a stage in their career when their work ambitions had been fulfilled, thus enabling them to enter
motherhood with the satisfaction of having completed the 'career phase' of their lives, the responses concerning unfulfilled work ambitions show that this was not the case; almost as many mothers in the group who had NOT worked as in the group who HAD worked reported unfulfilled work ambitions. This factor will obviously be taken into account when congruence is assessed, and must be borne in mind in assessing maternal satisfaction. Whilst some mothers would undoubtedly be content to postpone their careers until the children were less dependent, for some, this could be a continuing source of discontent.

5.2 Origins and stability of career orientation

In order to further understand mothers' career orientation, Spearman correlation coefficients were calculated between the measure of career orientation at fifteen months post-partum and selected variables from the Pre-Employment Interview Schedule. The data discussed in this sub-section are summarized in Table (17) of Appendix 2.

The most significant relationships to emerge from the analyses were those between career orientation and the mothers' qualifications on leaving school, further education, and ratings of their previous full-time job, the coefficients in each case being .4 (p = .001, .02 and .001 respectively). These coefficients indicate that the higher qualifications a mother obtained at school, the more further education she undertook, and the more she enjoyed her job, the
higher her degree of career orientation fifteen months after giving birth. The actual job held was slightly less important than whether or not the mother enjoyed it (rho = .3, p = .03).

The stability of career orientation is reflected in the relationships with attitudes to employment expressed at different points of time; the coefficients between career orientation and attitudes to work expressed during pregnancy was .3 (p = .009), with attitudes to working expressed at three months post-partum it was .4 (p = .001), with employment intentions expressed during pregnancy it was .2 (p = .05), and at three months post-partum it was .3 (p = .01).

Whilst none of the coefficients are particularly high, they do trace a continuum in attitudes, taking into account results of analyses of career orientation in Phase I, extending over a considerable period of time when it is considered that the modal age for giving birth was 27 in the PT group and 25 in the KV group. This means that mothers were leaving their careers, whether temporarily or permanently, after spending up to eleven years in its furtherance, a decision that for some, at least, was not easy, as will be shown in the section below on the importance of motherhood.

The results presented in this sub-section clearly support a difference in career orientation which is reflected in the mothers' employment intentions and actual employment status. It has been
shown that this difference begins to emerge at school, with what
has been termed 'investment' in a career. Having established the
mothers' level of career orientation at fifteen months post-partum,
traced its origins and relative stability over the two-year period
between pregnancy and the point of contact, the congruence between
career orientation and employment status can be examined.

5.3 Congruence between career orientation and actual employment
status at fifteen months post-partum

To obtain the designation 'congruence between career orientation
and actual employment status', the mothers' level of career
orientation described above, taken from responses given during the
interview as a whole, was compared with her employment intentions
and actual employment status. In order to check the reliability of
the author's designations, a sub-set of schedules were assessed for
congruence by another person, the percentage concordance obtained
being 100%.

Mothers who had expressed negative feelings about their work, had
obtained little satisfaction from it, who did not miss it, had no
unfulfilled work ambitions, did not wish to work, and were NOT
working, were designated 'congruent'. Mothers were also designated
'congruent' if they had expressed positive feelings about work, had
obtained much satisfaction from it, missed it, had unfulfilled
ambitions, wanted to work, and WERE working.
Mothers whose responses were all negatively oriented to work, who did not wish to work, but who WERE in fact working, were designated 'incongruent'; similarly, mothers whose responses were positively oriented to work, who wished to work, but who were in fact NOT working, were designated 'incongruent'.

Overall, 78.6% of the sample were designated 'congruent'. In terms of INTENDED employment status, more mothers in the EV group, (92.6%) were designated 'congruent' than mothers in the PT group (65.5%), whereas in terms of ACTUAL employment status, more mothers who HAD worked (88.9%) were designated 'congruent' than mothers who had NOT worked (69.0%). This suggests that the non-working group were more likely to remain at home even when their level of career orientation inclined them towards a career, an observation that is borne out by the numbers of non-working mothers with unfulfilled ambitions. These results are included in summary Table (16) of Appendix 2.

Before presenting results relating employment status and congruence to maternal satisfaction, the importance of motherhood is examined in the next section.

5.4 **Motherhood Importance**

The importance of motherhood is examined here, for if mothers were to differ in the importance they attached to motherhood, this might affect their degree of satisfaction; if motherhood were not very
important to a mother, then presumably she would be less satisfied with her present role than someone to whom it was important. The data discussed in this section are summarized in Table (18) of Appendix 2.

(i) The prospect of motherhood: The majority of mothers (87.5%) said that they looked forward to motherhood 'quite a lot' or 'very much'; only 7 mothers were not entirely positive about the prospect of motherhood. Analysis in terms of employment intentions did not differentiate. In terms of the mothers' actual employment status, 6 of the 7 mothers who were not positive about the prospect of motherhood were in the group who had NOT worked. Of the group who had worked, 96.3% looked forward to motherhood 'quite a lot' or 'very much', compared with only 79.3% of those who had not worked, the differences being of low order significance ($\tau = .17$, significance = .09). This result could be interpreted as showing that for some of the mothers who were giving up their career for motherhood, without planning its resumption within a fixed period after giving birth, the prospect of the 'gains' arising from motherhood were not completely outweighed by the 'loss' of their career, to which, as has been shown, a considerable number of years had been devoted. Re-analysis in terms of social class did not differentiate.

(ii) The 'cost-benefit' ratio of motherhood: To take account of the actual impact of motherhood in assessing its importance, what might be loosely termed the 'cost-benefit ratio' of motherhood was
examined. On the benefit side of the equation, the most rewarding aspect to the majority of mothers (57.1%) was 'watching the child grow and develop', followed by the 'development of a mutual attachment' (35.7%). 'Playing with the child' was only cited by one mother as being the most enjoyable aspect, as was 'child care'.

On the 'cost' side, 'tiredness' and 'repetitive routines' were cited as the least enjoyable aspects of motherhood by the majority of mothers. In terms of ACTUAL employment status, more of the mothers who had NOT worked said that they enjoyed 'repetitive routines' least (27.6% compared with 14.8% of those who HAD worked). 'Constantly putting the child first' was cited by more of the mothers who HAD worked than those who had NOT worked (18.5% compared with 6.9%). With respect to 'child care difficulties', all the citations came from mothers who had NOT worked. It would seem, therefore, that working mothers fared better than non-working mothers, for whom there was little relief from the inevitable repetition of routines associated with early motherhood.

None of the differences discussed above achieved statistical significance, however, and further analyses in terms of social class grouping and congruence also failed to differentiate.

(iii) Author's ratings of Motherhood Importance: Based on the interview as a whole, the author rated motherhood importance on a five-point scale ranging from 'not important' to 'very important'. Overall, as in the results presented above, motherhood was found to
be important. Only four mothers received the rating 'of some importance'; for 22 it was rated 'quite important', and for the remaining 30 it was 'very important'. Analyses in terms of intended or actual employment status did not differentiate; in terms of employment intentions, 63% of the NV group received the rating 'very important', compared with 44.8% of the PT group; in terms of actual employment status, 55.2% of those who had NOT worked, compared with 51.9% of those who HAD worked, received the rating 'very important'.

When the data were re-analysed in terms of congruence, a significant difference was found. Motherhood was rated as 'very important' for 61.4% of those who had been deemed congruent, compared with only 25% of those deemed incongruent; as 'quite important' for 34.1% of the congruent group, compared with 58.3% of the incongruent; and 'of some importance' for 4.5% of the congruent group compared with 16.7% of the incongruent group (tau c = -.27, significance = .001). This result is extremely important in terms of maternal satisfaction, for bearing in mind that more non-working mothers were designated incongruent, it shows that motherhood was less important to them than to mothers who were actually working at the same time. This does suggest that maternal satisfaction is likely to be rooted in successful resolution, involving minimal dissonance, of the problem 'to work or not to work'. Before proceeding to assessment of maternal welfare, motherhood importance is considered in relation to other variables, to confirm whether or not this 'problem' actually exists.
(iv) Relationship of Motherhood Importance to Other Variables:
Spearman correlation coefficients were calculated between motherhood importance and mothers' ratings of their previous full-time jobs, and attitudes to work expressed during pregnancy and at three months post-partum. Coefficients were of very low order, as shown in Table (17) of Appendix 2, which means that motherhood importance was relatively independent of work importance. It may be inferred from this that for some women BOTH motherhood and a career are important, thus validating the author's contention that maternal satisfaction is likely to be related to the decision about future employment.

(v) Congruence and Motherhood Importance: The results presented in this section show that there was no difference in the importance of motherhood as a function of the mothers' employment status, and that congruence between mothers' career orientation and employment status is likely to be a key variable in understanding maternal satisfaction. In this sample, a number of mothers were staying at home to care for their children when motherhood was not particularly important to them; similarly a number of mothers were working when motherhood was very important to them. Reconciling the importance of a career with motherhood is not easy for some women in a society which still assumes that every couple wants to have children, and that mothers will temporarily, if not permanently, give up their careers to look after young children. There is still very little provision for a woman to encompass both simultaneously, nor adequate financial support to enable some women to exercise the
right NOT to work if they choose, so that they are forced to seek employment to augment their family income. Such factors do not augur well for maternal satisfaction.

In the next section, the effects of employment decisions on the welfare of the mothers themselves will be examined, as mothers' welfare is considered to be contributory to their satisfaction.

5.5 Maternal Welfare

Variables contributing to maternal welfare are physical and psychological well-being, and the state of the marital relationship, including financial well-being, assessed at fifteen months post-partum from responses to questions contained in the Post-Employment Questionnaire. Summaries of the data appear as Table (19) of Appendix 2.

(i) Physical Well-being: In the analysis in terms of employment intentions, the health of mothers in the PT group was found to have been worse than that of the KV group; only 44.8% of the PT group claimed to have enjoyed 'very good' health since the birth of their baby, compared with 66.7% of the KV group (tau c = -.20, significance = .07).

The differences in stated health were reflected in the type of medical treatment received since giving birth. Whereas 62.96% of the KV group had received no medical treatment at all, (compared with 44.63% of the PT group), and approximately the same proportion of each group had consulted
their G.P. during this period, more than three times as many mothers in
the PT group had received treatment as hospital out-patients, and as
hospital in-patients, than had mothers in the NY group. These differences
were statistically significant ($\tau = -0.23$, significance $= 0.05$). Re-
analysis in terms of social class did not differentiate, either in terms
of stated health or in medical treatment.

Results of the analysis in terms of mothers actual employment status
were in the same direction, but did not differentiate between groups
either in stated health or medical treatment. However, analysis in terms
of congruence did reveal significant differences in stated health ($\tau =
0.28$, significance $= 0.006$), the modal health rating for the congruent group
being 'very good' (63.6%), whereas for the incongruent group it was 'quite
good' (58.3%); there was very little difference between the groups in the
type of treatment received.

The type of ailment suffered was not recorded; with hindsight, this
appears to have been an omission, for had it been recorded, it would have
been possible to separate out the purely physical ailments from the
psychological, which are discussed in the next sub-section. Nevertheless,
what these results do show is that mothers who were designated
congruent perceived their health to be better than those designated
incongruent.
(11) Psychological Well-being: Mothers were asked to indicate how often they had been depressed, anxious, or irritable/stressed since having their babies; the results for each are reported separately below.

a) Frequency of Depression: The majority of mothers had fared very well, with 19.6% reporting that they had never been depressed and a further 17.5% only 'very rarely'. In the analysis in terms of employment intentions, feelings of depression were more common in the KW group, of whom 37% reported feeling depressed 'sometimes' and 14.8% 'frequently', compared with 31% and 3.4% respectively in the PT group. These differences approached statistical significance ($\tau = .23$, significance = .06).

In terms of actual employment status, much the same picture emerged. More of the mothers who had NOT worked reported feeling depressed 'sometimes' or 'frequently' than mothers who had worked ($\tau = .20$, significance = .08).

It was predicted (Hypothesis 21) that mothers whose employment status was incongruent with their ideology would suffer more depression than mothers whose status was congruent. Analysis in terms of congruence clearly supports the hypothesis; 16.7% of mothers deemed incongruent reported feeling depressed 'frequently' and 50% 'sometimes', compared with 6.9% and 29.5% respectively of those deemed congruent ($\tau = .27$, significance = .01).
This result suggests that congruence confers some form of protection from feelings of depression, and as argued above, reconciliation of the desire for a career at the same time as a desire for motherhood is, in itself, likely to reduce feelings of frustration and dissonance which could, in turn, result in depression.

b) Feelings of Anxiety: It was predicted (Hypothesis 20) that mothers whose employment status was incongruent with their ideology would be more anxious than mothers who were deemed congruent. Mothers were asked about the frequency of feelings of anxiety, and of feelings of irritability and stress, which are frequent concomitants of anxiety and may be more readily recognizable.

The NW group reported a higher frequency of feeling 'very anxious' since having the baby, with 3 mothers (11.1%) claiming such feelings 'frequently' and 1 mother 'constantly', compared with only 2 mothers in the PT group (6.9%) feeling very anxious 'frequently'. In terms of actual employment status, more mothers who HAD worked reported feeling 'very anxious'; neither analysis, however, achieved statistical significance.

The analyses found very little difference between the employment groups in the frequency of feelings of irritability and stress; overall 42.9% of mothers reported feeling very irritable or stressed 'sometimes', and 12.5% 'frequently' since having the baby.
In terms of congruence, more of the incongruent group (50%) reported feelings of anxiety than the congruent group (40.9%), and 58.3% reported irritability and stress, compared with 54.6% of the congruent group. The analysis shows that whilst the results were in the predicted direction, they failed to achieve statistical significance, and cannot, therefore, be taken as supporting Hypothesis 20.

c) Ability to cope with baby: Mothers were also asked whether they had ever felt they could not cope with the baby. According to their responses; such feelings had not occurred or only 'very rarely' in the majority of mothers. In both employment analyses, four mothers in each group had 'sometimes' felt this way, and 1 working mother 'frequently' did, but the differences were not statistically significant.

There were, however, significant differences in the frequency of feelings that mothers 'might lose control and hurt the baby'. Overall, 44.6% of mothers had had such feelings; in the analysis in terms of employment intentions, 46.3% of the PT group had such feelings 'very rarely', compared with 25.9% of the NW group, and two mothers in each group had such feelings 'sometimes' (tau c = .20, significance = .07). Such feelings occurred 'very rarely' in 48.1% of mothers who HAD worked, compared with 27.6% of mothers who had NOT worked, and occurred 'sometimes' in 11.1% of those who HAD worked, compared with 3.4% of those who had NOT worked (tau c = .30, significance = .02).
In the analysis in terms of congruence, there was little difference between the two groups; 16.7% of the incongruent group reported feeling unable to cope, compared with 15.9% of the congruent group. Similarly, 6.3% reported feeling they might lose control and hurt the baby, compared with 6.8% of the congruent group.

Re-analysis in terms of social class failed to differentiate between patterns of responses to questions on psychological well-being.

d) Feelings of guilt: It was predicted (Hypothesis 22) that mothers who chose to work because of their strong career orientation would experience more guilt than mothers forced to work for financial necessity. Of the 27 mothers who HAD actually worked, 9 (33.3%) said that did feel guilty about working, and 18 (66.7%) that they did not feel guilty. In terms of career orientation, 7 of the mothers (25.9%) were working purely for financial reasons and a career was not important to them; NONE of these mothers said that they experienced guilt. Of the mothers to whom a career was important, 9 (33.3%) were working for financial reasons, and 8 (29.6%) to further their career; the remainder (11.1%) were working to gain the company of other adults. In this group, 9 mothers said that they did experience guilt and 11 that they did not. Whilst these results were not statistically significant and cannot therefore be claimed to support the hypothesis, the tabulation does show that mothers forced to work for financial necessity do not experience the same guilt as mothers who choose to work.
One would expect working mothers to be under more physical strain than their non-working counterparts through trying to run a home, look after a child, and go out to work, although the results in terms of rated health were not significant. The results presented here show that working mothers are also under more psychological strain; it appears, however, that some protection from, or attenuation of, its manifestations in feelings of depression, anxiety, ability to cope, and feelings of losing control and hurting the baby, occurs when mothers' employment status is congruent with their career orientation.

(iii) Marital Relationship: There were no significant differences between groups in the reported frequency of strain on the marital relationship as a result of the baby's arrival. Overall, 39.3% of mothers denied any strain, and a further 57.1% reported its occurrence as 'very rarely' or 'sometimes'. In terms of employment intentions, only one mother, from the EW group, said that the baby 'frequently' caused strain, and one mother, from the PI group, reported that it happened 'constantly'. In terms of actual employment status, both mothers who had said that the baby regularly caused strain belonged to the group who had NOT taken employment. In the analysis in terms of congruence, the mother reporting frequent strain was in the group deemed congruent, whilst the mother reporting constant strain was in the group deemed incongruent.

With respect to the financial impact of the baby's arrival, just over half the sample (51.78%) stated that the baby had 'never' or 'very rarely' given them any financial worries. In terms of employment intentions,
financial worries were more frequent among the FT group, of whom 13.6% had 'frequent' financial worries attributable to the baby's arrival, and a further 6.9% had 'constant' worries, compared with 11.1% of the NV group who had 'frequent' worries, and none who claimed 'constant' worries. In terms of actual employment status it was again the group who HAD worked who reported a greater incidence of financial worries due to the baby. More of the mothers deemed incongruent (66.6%) reported financial worries than mothers deemed congruent (43.2%). None of the differences in reported frequency achieved statistical significance.

Exactly half the sample reported that they 'felt closer to their husband' since the birth of the baby; in terms of their employment intentions, this was equally divided between the two groups. More of the NV group reported that they felt 'less close' to their husbands since the baby's birth (22.2%, compared with only 3.4% of the FT group). In the analysis in terms of their actual employment status, it was again the group who had NOT worked who had the greater number of mothers reportedly feeling 'less close' to their husbands (17.2%, compared with 7.4% of those who HAD worked). Similarly, in terms of congruence, a higher percentage of mothers deemed incongruent reported feeling less close. However, none of the analyses achieved statistical significance, nor were there any significant differences in patterns of response as a function of the social class grouping of the mother.

It is suggested that feelings of closeness were more likely to be maintained in the working group because the mothers employment could be
construed as contributing to the well-being of the family, whereas many non-working mothers, and those designated incongruent, also had financial difficulties but could not feel instrumental in resolving them. Awareness of this factor, in addition to the feelings of isolation and of being tied to the house, reported in Section 5.1 above, could lead to frustration and resentment, which could focus on the husband, particularly if the mother had given up a satisfying career and the husband had not. In the next sub-section, the results of analyses of the mothers' ratings of satisfaction with their current mode of life adds another dimension to understanding their welfare, before assessing overall differences in maternal satisfaction.

5.6 Ratings of Satisfaction

In this section, the results of responses to questions asking mothers directly about satisfaction with their current mode of life are reported, together with the author's ratings of maternal satisfaction, based on the Post-Employment Interview as a whole. The results discussed in this section are summarized in Table (20) of Appendix 2.

(1) Feelings of 'missing out': Mothers were asked if they ever felt they were 'missing out on anything' by working or not working, as the case might be. In terms of employment intentions, more mothers in the FT group did feel that they were missing out, with 3 (10.3%) responding 'frequently' and 1 'constantly'. This compares with only 1 mother in the EW group responding 'frequently'. The differences in responses approached
statistical significance (tau c = -.23, significance = .06). Analysis in
terms of the social class grouping of the mother failed to differentiate.

In terms of actual employment status, it was the mothers who had NOT
worked who were more likely to feel that they were 'missing out', but the
differences did not achieve statistical significance. As these were the
mothers who had given up their careers to look after their babies, it
could be inferred that it was the career dimension that they were
missing.

Analysis in terms of congruence revealed very highly significant
differences. Whereas 72.8% of mothers deemed congruent said that they
'never' or 'very rarely' felt they were 'missing out', and the remainder
'sometimes' felt they were, all the mothers in the group deemed
incongruent felt they were 'missing out'. Such feelings occurred
'sometimes' for 58.3%, 'frequently' for 33.3%, and 'constantly' for the
remaining 8.3% (tau c = .57, significance = .0001).

This result is very important indeed for the understanding of
satisfaction. It will be recalled that mothers were designated incongruent
if they were caring full-time for their child when their career
orientation and preference was to work; similarly, mothers were
designated incongruent if were working but would have preferred to remain
at home full-time to care for their child. If all these mothers felt they
were 'missing out', then clearly actual employment status is less
important than congruence, and if mothers designated incongruent felt
they were 'missing out', it seems unlikely that they would experience much satisfaction.

(ii) Mothers' ratings of satisfaction: Mothers were asked to rate how often they felt satisfied with their current mode of life on a five-point scale ranging from 'never' to 'constantly'. Overall, the majority of mothers (83.9%) rated themselves as 'frequently' or 'constantly' satisfied.

In terms of employment intentions, FT mothers were less likely to rate themselves as satisfied, but the differences were only weakly significant (τ = .20, significance = .08), and failed to achieve statistical significance in the re-analysis in terms of actual employment status. Analysis in terms of the social class grouping of the mother did not reveal any significant differences.

When the data were re-analysed in terms of congruence, very highly significant differences emerged; all the mothers who rated themselves as 'constantly' satisfied were in the congruent group. At the other end of the scale, 41.7% of the incongruent group were 'very rarely' or 'sometimes' satisfied, compared with 6.8% of the congruent group (τ = .39, significance = .0003). Before considering the implications of this result, analyses of the author's ratings of maternal satisfaction are reported.

(iii) Author's ratings of satisfaction: Based on the interview as a whole, the author rated maternal satisfaction on a five-point scale from 'very dissatisfied' to 'very satisfied'. In order to assess the reliability of
the author's ratings, a sub-set of the schedules were rated by a person who was unaware of the author's hypotheses. Percentage concordance ranged from 89% to 100%, averaging 98.6%.

Whereas none of the mothers had rated themselves as 'never' feeling satisfied, the author rated two mothers as 'very dissatisfied', 1 as 'dissatisfied', and 7 as 'doubtful'. The remainder were rated as 'satisfied' or 'very satisfied'. In the analysis in terms of employment intentions, more of the AW group were rated as 'satisfied', or 'very satisfied', the differences in ratings being statistically significant (tau c = .24, significance = .05).

In terms of ACTUAL employment status, the previous picture was reversed, with 10 mothers who HAD worked, and 7 who had NOT worked being rated as 'very satisfied'. At the other end of the scale, the two mothers who were rated as 'very dissatisfied' were again split between the two groups, and the mother rated 'dissatisfied' came from the group who HAD worked. In this analysis, the difference in ratings between the two groups did not achieve statistical significance.

When the data were re-analysed in terms of congruence, there were again very highly significant differences; both mothers rated as 'very dissatisfied' were in the incongruent group. At the other end of the scale, all the mothers rated as 'very satisfied' were in the congruent group (tau c = .50, significance = .0001).
Re-analysis in terms of the social class grouping of the mother did not differentiate between patterns of response.

Taking the two sets of ratings together, it is clear that, regardless of their actual employment status, the most satisfied mothers were in the group who were designated congruent.

These results are summarized in Table (21) of Appendix 2.

6 Objective 9 To compare maternal satisfaction at the end of the period of contact with that expressed one year earlier

In order to assess the relationship between Maternal Satisfaction and variables from Phase I, Spearman correlation coefficients were calculated.

Mothers who rated their satisfaction with motherhood most highly at three months post-partum were also the most satisfied fifteen months later, although the coefficients were of very low order (rho = .24, significance = .04).

Mothers who said in pregnancy they definitely did NOT want to work after their baby was born received higher ratings of satisfaction fifteen months later (rho = .22, significance = .05). Similarly, the relationship between work intentions at three months post-partum and maternal satisfaction at fifteen months indicated that
mothers who definitely intended to stay at home were more satisfied fifteen months later (rho = .22, significance = .05).

An interesting relationship to emerge from the correlation analysis is that between education and maternal satisfaction fifteen months after giving birth. Although the relationships are again only weak, the pattern indicates that mothers who left school with fewer qualifications, and who received little or no further education, were more satisfied than their more highly educated counterparts (rho = .25, significance = .06). The relationship continues, in slightly attenuated form, into higher qualifications, such that the more highly qualified the mother, the lower the rating of satisfaction (rho = .24, significance = .08).

The relationships discussed in this section are summarized in Table (22) of Appendix 2.

7 Maternal Satisfaction: Summary and Conclusions

In this section, the results presented above will be brought together in order to assess overall support for Hypotheses 19 - 22. The major hypothesis under examination was that maternal satisfaction would not be simply related to employment status, but rather that it would be a function of the congruence between mothers' career orientation and employment status.
Hypothesis 19: This predicted that mothers whose employment status was congruent with their career orientation would experience more satisfaction with their role than mothers whose status was incongruent. Having established mothers' level of career orientation, this was related to their employment status in order to determine which mothers could be designated 'congruent' and which 'incongruent'. The components of maternal satisfaction, namely motherhood importance, maternal welfare, and ratings of satisfaction made both by the mothers themselves, and by the author, at the conclusion of an hour-long interview, were then examined in some detail.

(i) Motherhood Importance: The results showed that there were no significant differences between employment groups in the prospect of motherhood, the 'cost-benefit' ratio of motherhood, or the author's ratings of motherhood importance. Whilst analysis in terms of congruence did not differentiate in prospect of motherhood, or 'cost-benefit' ratio, there were significant differences when the author's ratings were re-analysed, such that mothers whose employment status was congruent with their career orientation attached more importance to motherhood than those whose status was incongruent.

(ii) Maternal Welfare: With respect to physical well-being, there were no significant differences between employment groups in mothers' ratings of their health since giving birth, nor in the type of medical treatment they had received. Analysis in terms of
congruence did, however, show that mothers who were designated congruent rated their health as significantly better than mothers designated incongruent, although there was no significant difference in the type of treatment received.

In terms of psychological well-being, the results showed that there were no significant differences between employment groups in the frequency of depression, anxiety or feelings of guilt. Specific hypotheses were formulated about the incidence of these indicators in terms of congruence:

Hypothesis 20 predicted that mothers whose employment status was incongruent with their career orientation would be more anxious than mothers whose employment status was congruent. The results of analyses of the frequency of anxiety, feelings of stress and irritability, and ability to cope with the baby were all in the predicted direction, but as they were not statistically significant, they cannot be taken as supporting the hypothesis.

Hypothesis 21 predicted that mothers whose employment status was incongruent with their career orientation would suffer more depression than mothers whose employment status was congruent. The results clearly supported this hypothesis.

Hypothesis 22 predicted that mothers who chose to work because of their strong career orientation would experience more guilt than mothers forced to work from financial necessity. As the
results were again in the predicted direction, but did not achieve statistical significance, the hypothesis cannot be supported.

Looking at the impact of the baby's arrival on the marital relationship, there were no significant differences between employment groups in reported strain on the relationship, financial strain, or feelings of closeness to the baby's father. Analysis in terms of congruence also failed to differentiate, although for financial strain, the results were in the predicted direction.

(iii) Ratings of Satisfaction: Whilst mothers who intended to or were actually working were more likely to feel that they were 'missing out' as a result of their employment status, the results were not statistically significant. By contrast, analysis in terms of congruence showed that ALL the mothers in the incongruent group felt that they were 'missing out', a result that was very highly significant.

Mothers' ratings of satisfaction with their current mode of life were not statistically significant in terms of their intended or actual employment status. Analysis in terms of congruence, however, revealed very highly significant differences, with mothers designated congruent rating themselves as far more satisfied than mothers in the incongruent group.
Analysis of the author's ratings of satisfaction showed the XV group to be more satisfied than the PT group, although there was no significant difference between groups when analysed in terms of actual employment status. Analysis in terms of congruence followed the same pattern as for the mothers' own ratings, with mothers designated congruent being rated as far more satisfied than mothers designated incongruent.

Conclusions:

(i) All the results presented above are in concordance with the author's contention that maternal satisfaction is NOT a simple function of the mothers' employment status, as not one result differentiated between groups in terms of actual employment status. Whilst the re-analyses were time-consuming, in retrospect, and with the benefit of the results of the analyses, it is considered that a very misleading picture would have been presented if the data had only been analysed in terms of the mothers' original employment groups. Analysis in terms of actual employment status allowed the data to be interpreted with a degree of confidence in its validity that would have otherwise been missing, given that the study was longitudinal in design.

(ii) The designation of congruence was made in an impartial manner as possible, based purely on interpretation of the mothers' own statements, and supported by a simple test of reliability. The author is confident that the designations actually reflected the
mothers' positions with regard to their career orientation and actual employment status.

(iii) All the results indicated that congruence was a very important variable, and supported the author's contention that it would be the key to understanding maternal satisfaction.

(iv) Analyses of ratings of motherhood importance, physical and psychological well-being, financial strain attributable to the baby, feelings of 'missing out', mothers' own ratings of satisfaction with their current mode of life, and the author's ratings of satisfaction converge to give a composite account of maternal satisfaction. The balance of the evidence presented here strongly supports the hypothesis (Hypothesis 19) that mothers whose employment status is congruent with their career orientation experience MORE satisfaction than mothers whose status is incongruent with their career orientation.

8 Congruence and Socio-emotional development

Having established that congruence between a mother's career orientation and employment status is of central importance to the satisfaction she experiences, the post-hoc analysis of socio-emotional development in terms of congruence can be presented.

It was hypothesized that if a mother was less satisfied when her career orientation and employment status were incongruent, then
possibly some of her dissatisfaction might be communicated to her infant, and could possibly exert an effect on the infant's socio-emotional development. Consequently, data from the Socio-emotional Development Questionnaire were re-analysed as a function of the mother's designation of congruent/incongruent.

As significant differences were only found on the sub-scales 'Tolerance for departures from normal routines' and 'Independence', the hypothesis had to be rejected.

A summary of the analysis appears as Table (23) of Appendix 2.

The presentation of results from the present study is now complete; in the following chapter, the results are discussed both in terms of their implications with respect to other studies previously conducted in the same field of interest, and for the direction and conduct of further studies, as well as from a theoretical standpoint.
CHAPTER 14 - DISCUSSION

1 Introduction

Having presented the results of the present study in Chapters 12 and 13, the findings can now be evaluated in the wider context of the theoretical and experimental paradigms of infant socio-emotional development and non-maternal care.

Since this study began, a number of studies have been conducted in the same area, and, where appropriate, these will be woven into the discussion. Several follow-up studies have also been conducted which have served to illuminate the earlier findings and to suggest that some of the conclusions previously drawn were premature. As was stated in Chapter 8, only when the long-term sequelae of early daily separations from the mother are known, can causal inferences be drawn with any confidence about the effects of maternal employment on child development.

The aims of the present study, it will be recalled, were threefold:

a) to examine whether mothers and infants differ on a variety of indicators before the intervention of maternal employment for a sub-sample of the group

b) to examine the effects, if any, of part-time maternal employment on the socio-emotional development (as defined in Chapter 10, Section 2.5) of infants, compared with that of non-working mothers

c) to examine the effects, if any, of part-time maternal
employment on the welfare and satisfaction of the mothers, compared with that of non-working mothers.

In the following three sections, each of these aims will be discussed in turn, before a model of the relationship between maternal employment, socio-emotional development and maternal satisfaction is proposed.

In the next section, the homogeneity of the sample is discussed; the need to establish homogeneity of samples, together with the need for studies based on children whose mothers work part-time, was fully recognized in the present study, and indeed, the first phase of data collection was devoted to that aim. The framework of the study aspired to ecological validity, as advocated by BRONFENBRENNER (1977) and BELSKY & STEINBERG (1978). However, as BELSKY (1986) points out,

'in the ecology of day care, perfect field research seems almost impossible; moreover, it would seem that the more perfect it is, the less generalizable it might be'

The present study was no exception to this observation; retrospective interviews, observational data, and maternal reports have each been criticized as methods of data collection if unsupported by independent data, and for this reason, wherever possible, standardized tests were utilized to corroborate or converge upon data collected by the methods referred to above. In
addition, reliability tests were conducted on the pilot and independent samples to validate any measures dependent upon the author's judgement or interpretation of responses. In this way, every care was taken to ensure that the study was conducted in as rigorous manner as possible, that measures were valid, and procedures reliable.

2 Homogeneity of samples

In Chapter 8 (Section 2.4), the assumption of homogeneity of samples was cited as a common stumbling-block to the generalizability of research findings from day care studies, as, clearly, pre-existing differences prior to day care would be potentially confounding (cf WALLSTON, 1973; RUBENSTEIN, HOWES & BOYLE, 1981).

2.1 Homogeneity between groups of mothers

In order to examine base-line differences between mothers in the present study, the stratagem was employed of setting up the hypothesis that differences would exist. It was argued in Chapter 8 that if the null hypothesis, viz. that there were no differences between groups, could not be rejected, then the groups could be construed as homogeneous, at least with respect to the variables under examination. For this purpose only, it was therefore hypothesized that differences would exist in terms of selected socio-demographic variables, personality, child-rearing ideology,
general and emotional health, pregnancy and childbirth experiences, and attachment to infants at three months post-partum. The list of variables was not claimed to be exhaustive, and obviously reflected the author's interpretation of an acceptable range of baseline 'areas' for examination.

With respect to general background variables, it was shown that working and non-working mothers could be construed as homogeneous prior to employment. However, given that the sample was allocated to groups on the basis of their future employment intentions, further specific predictions were made on theoretical grounds regarding differences in career orientation, attitudes to employment and belief in the importance of exclusive maternal care. Before discussing these differences, several interesting results, worthy of further comment, emerged from the general childbirth data and are discussed below.

(1) **Childbirth**

Whilst no significant differences, other than in perception of pain in labour, were found in the childbirth data, it was interesting in the light of studies of human infant bonding and attachment to find that, as advocated over a decade ago in the KLAUS-KENNELL model (cf Chapter 4, Section 1.2), the majority of mothers nowadays do hold their newborn infants before they are cleaned, and keep them for at least half an hour after the birth, even though the evidence for the benefits of such practice is inconclusive.
The data on medical intervention in childbirth revealed that the use of 'technology' found by CHALKER (1978) and OAKLEY (1980), continues to increase. As in OAKLEY's sample, the mothers in the present study were 'normal primigravidae', and whereas OAKLEY found that a third of labours in her sample were induced, over 40% were induced in the present study; whereas OAKLEY found that one in ten babies was delivered using instruments, this had increased to one in five in the present study. Figures for delivery by Caesarean section and for episiotomies were at similarly high levels in both studies.

The significance of such data lies in the relationship documented by OAKLEY and ROBSON & KUMAR (1980) between the degree of technology in childbirth and mothers' negative feelings towards their neonate. As in the study by ROBSON & KUMAR, 40% of mothers in the present study were initially indifferent to their infants, particularly if forewater amniotomy had been performed, and pain in labour was worse than expected, although the indifference had usually dissipated within a few days. In the present study, it was the part-time working group who, overall, perceived childbirth to be more painful than expected, and these mothers were found to express less positive emotion towards their infants at three months. This clearly supports ROBSON's (1981) finding that such mothers showed less affection to their babies three months later. It might also reflect the fact that such mothers were not completely at ease with incipient motherhood, given that they were
returning to work before the child was a year old, and might have been experiencing dissonance over their decision to work.

(11) Career orientation

With respect to career orientation, the results in the present study indicate that mothers begin to diverge in their attitudinal framework as early as post-school career training, and probably earlier, with twice as many potential working mothers undergoing career training as potential non-working mothers. The latter are less likely to invest in career training as they perceive employment to be a temporary phase until they 'settle down and start a family'. Consequently non-working mothers tend to give birth to their first child about two years earlier than mothers with more investment in their careers.

This is consistent with HOCK's (1978) finding that working mothers are more career-oriented than non-working mothers. HOCK reported that career orientation was stable from maternity ward interviews to follow-up at 3-4 months post-partum. In the present study, this period was extended by retrospective questioning to encompass attitudes in pregnancy to employment, and attitudes to a career and training for a career, suggesting that career orientation is actually stable over a much longer period, indeed, that it can be traced back to decisions taken about a career during and after school, and forward to actual employment status fifteen months after giving birth.
The reasons given for working in the present study did not differ from those in other studies, with financial reasons being the most frequently cited, nevertheless, as in the YUDKIN & HOLME (1963) study, professional or vocational interest was claimed by a substantial minority, particularly of those actually working. Most common of the non-financial reasons for working was to escape from daily household routines, also reported by HOFFMAN (1974), and the desire for adult company, which was also reported by CLARKE-STEWARD (1982).

(iii) Attitudes to maternal employment

As predicted, working mothers were found to have more positive attitudes to maternal employment than non-working mothers. The major difference between working and non-working mothers was in their belief in the need for exclusive maternal care and in the harmful effects of working upon children. In the present study, this was the only dimension of the 'Attitudes towards a dual role for women' questionnaire (DALRYKPLE, LOVE & NELSON, 1971) to differentiate, whereas STUCKEY et al (1982) found that 3 of the 4 dimensions differentiated between their working and non-working groups.

It seems likely that there is some element of post-decision rationalization operative here, bearing in mind that at this point in time mothers had stated their future employment intentions. Mothers who were proposing to return to work would probably have
found it difficult to express a belief in the need for exclusive maternal care, and that there were harmful effects upon the children in a course of action upon which they were shortly to embark, without experiencing dissonance.

The belief by non-working mothers that children need the exclusive care of their mothers was also documented by HOCK (1980), who went on to suggest that non-working mothers possibly promote their infants' dependency, presumably to bolster this belief. Whilst this may have been true of HOCK's sample, there was no evidence of it in the present study, although infants of non-working mothers were slightly more dependent at fifteen months of age. Indeed, the converse seems equally likely, namely that working mothers promote independence, as, for example, many playgroups and childminders refuse to take a child who is not toilet-trained or cannot feed him- or herself by the age of three.

(iv) **Summary and conclusion:** It has been shown that even when mothers are demonstrably homogeneous with respect to general background variables that can be assessed using objective or standardized tests, they may still differ quite markedly in attitudes, the origins of which can be traced back over a considerable number of years, most notably in career orientation and belief in the importance of exclusive maternal care. Since attitudes are notoriously resistant to change, their existence cannot be ignored, particularly when they can influence decisions about employment which are likely to affect the rearing of children.
born a decade or so after the attitude formation, and possibly, though indirectly, the socio-emotional development of those children. Whilst it may be time-consuming to examine pre-existing differences between groups, these results identify some of the potentially confounding variables that continually plague research of this nature and demonstrate that to attribute differential outcomes solely to the employment status of the mother is both to disregard ecological validity and to deny the complex interaction of variables, a situation which is likely to result in outcomes contaminated by the effects of such confounding variables.

2.2 Homogeneity between groups of infants

With respect to the infants in the two groups, the assumption of homogeneity was tested as previously described by setting up hypotheses to examine the baseline variables of birth experiences, temperament and developmental status, prior to maternal employment. Whilst no significant differences were found between the two groups of infants in the present study, it was important, for the reasons given above, to indicate this fact to the reader, as any differences found could have been potentially confounding.

In the present study, the infants were only aged three months when temperament and developmental status were assessed, so their cumulative life experiences would have been relatively small. Had they been older, a different result might have emerged. A case in point is the study by ROOPMARINE & LAMB (1978) who found that,
prior to maternal employment, a pre-day care group showed more distress at separation and more intense reunion behaviours in the 'Strange Situation' than home care children, the differences being attributed to anticipatory behaviours on the part of the MOTHER. In this study the children were aged 36 months when tested, and had therefore, a considerable period of exclusive maternal care, comparable to that of home-reared children in most studies, before their mothers commenced full-time employment.

The important point, again, is that homogeneity should not be assumed, particularly in longitudinal or retrospective studies, and where the dependent measure is as complex as attachment behaviour, the antecedents of which have been shown to develop in infancy.

2.3 Social interaction

Whilst it was concluded that there were no significant differences between groups in patterns of social interaction at three months of age, the data are worthy of further consideration. The purpose of examining social interaction was to establish whether mother-infant dyads were homogeneous in this respect prior to maternal employment. A number of interesting differences were found, and could be usefully followed up in their own right, particularly the differences in mother-boy, as opposed to mother-girl, interaction, discussed in Chapter 12 (Section 4).
Relating the present findings to studies reviewed in Chapter 7, (Section 5), it was reported by HOCK (1976) that after maternal employment, there were still no observable differences in interaction when infants were one-year old. However, by 21 months of age, COHEN (1978) found that non-working mothers were giving more positive attentiveness to their infants, who in turn vocalized more. In the present study, whilst it was not possible to repeat the measure, it was also found that non-working mothers were more responsive to their infants at three months, even though these infants actually communicated less than infants of working mothers.

The contingency analysis in the present study examined how many maternal responses were contingent upon infant communication, either immediately or within a 10-second latency. This is concordant with GEVIRTZ & BOYD's (1977) contention that mothers' social responses come under the control of the infant's social behaviour, whereas COHEN was taking the temporal sequence in the reverse order, by looking at infant communication contingent upon maternal communication. This result, whilst not significant, is in the same direction as the findings of SCHUBERT, BRADLEY-JOHNSON & BUTTALL (1980), namely that infants of non-working mothers actually initiate more interaction than infants of working mothers (cf Chapter 5, Sections 3.2 and 4), although RHEINGOLD (1969) claimed that in the reciprocal socialization of mothers and infants, responsibility for initiating interaction actually lies with the mother. On the present results, there are no grounds for detracting from Lytton's (1978) tennis game analogy, (cf Chapter 4, Section 498.
5), in which the actions of each partner are in part determined and modified by those of the other,

Data from all the sources converged to present a picture of three-month-old infants of non-working mothers being perceived as having more average or easier-than-average temperaments, being more attractive, more easily satisfied, more responsive, more cooperative, happier, and less fearful. Whilst none of these results were individually found to be statistically significant, nevertheless, looking beyond statistical analyses, the author must make a case for their being 'real' and setting the scene for more rewarding interactions with the mother. As pointed out in Chapter 5 (Section 2.6), the mother's opinion of her child's temperament may have an effect on the child's development (cf. Sameroff et al., 1982), such that, like a self-fulfilling prophecy, the child perceived as 'difficult' may eventually become 'difficult', a state of affairs that could obviously influence the quality of mother-child interaction (cf. Milliones, 1978).

Whilst infants' experiences of social interaction may, overall, be homogeneous prior to maternal employment, some indication that the quality of interaction subsequently declines for infants of non-working mothers comes from Rubenstein & Hooves (1979), who speculated that home-reared children are subject to more negative maternal affect, irritation and restrictiveness in the isolated setting of the home, compared with infants in day care centres. In a similar vein, Hoffman (1983) found that working mothers of older
children actually spend as much time in interaction with their children as non-working mothers, albeit compressed into a shorter 'time-span due to their hours of employment. Indeed, there is some evidence that working mothers might actually over-compensate for their hours away from the child, with the result that they over-stimulate infants to the point where they later display insecure-avoidant attachment (LEWIS et al, 1984). Whilst it was beyond the scope of the present study to re-examine social interaction after maternal employment, the latter findings should be borne in mind in the subsequent discussion of socio-emotional development.

The relationship between interaction and attachment was discussed in Chapter 4 (Section 5), where it was argued that for some researchers who eschewed the arbitrary definitions and indices of attachment associated with the 'Strange Situation' (e.g. ROSENTHAL, 1973; CAIRNS, 1977; GEVIRTZ & BOYD, 1977), social interaction is the operational definition of attachment. Following this line of argument, it can be said of the infants in the present study that they were also homogeneous in their attachments to their mothers at three months of age.

Conclusion: Clearly it is highly unlikely that researchers could ever assemble completely homogeneous samples; following the spirit of arguments such as those by WALLSTON (1973), what is required in fields as complex as day care, maternal employment or whatever nomenclature is employed, is to demonstrate, as has been done in the present study, how similar groups are on background variables,
and how they differ on variables that might interact with the independent variables being manipulated and their dependent outcomes, BEFORE the intervention of employment for one group of mothers.

3 Socio-emotional development

3.1 The Socio-emotional Development Questionnaire (SEDQ)

It was stated in Chapter 10 (Section 2.5) that the intention in the SEDQ was to bring together the dimensions of social competence, emotionality and emotional security, which together constitute what is generally referred to as socio-emotional development, into one instrument, using items formulated in terms of the child's actual behaviour in a variety of concrete situations. The sub-scales were shown in Chapter 11 (Section 2.6) to be sufficiently independent to assume that they were measuring different aspects of socio-emotional development. Distributions for the summary scales and total score did not deviate significantly from normal, although two of the sub-scales were clearly negatively skewed.

The instrument was easy to administer, and mothers clearly enjoyed talking about their infants' behaviour. With the direction of questions being periodically reversed, response bias was reduced as far as possible. The method of scoring was found to be straightforward, and reliability of scoring was at an acceptable level. Overall, although its psychometric properties have yet to be
established, the instrument was considered to be satisfactory and capable of fulfilling its intended purpose by identifying differences in infant socio-emotional development, as presently defined. At this point in time, it appears to serve a useful role in bridging the divide between narrowly defined socio-emotional development, usually meaning attachment behaviour in laboratory or quasi-naturalistic settings, and behavioural screening questionnaires aimed at older children. If it can subsequently be shown to have predictive validity by mapping onto such behavioural questionnaires, it could prove to be a useful early predictor of later behavioural and adjustment difficulties.

3.2 A methodological note on socio-emotional development and day care studies

In making comparisons between the findings of the present study and those reviewed earlier, the distinction must be emphasised between 'day care', as it has generally been defined, and the type of alternative care provided for these infants. Day care, particularly in studies emanating from the United States, usually refers to full-time group care in purpose-built centres, often attached to Universities, with trained staff and developmental programmes for infants ranging from the compensatory to the enriching. Clearly, this type of alternative care has little in common with the care provided, for example, by a childminder or grandmother on a part-time basis.
Secondly, as discussed in Chapter 4 (Sections 4.2, 4.7), a common feature of the studies reviewed was the use of the 'Strange Situation' or some form of 'stranger approach'. Because of criticisms made about the validity of the 'Strange Situation' on ecological grounds, in the present study infants' behaviour was reported as observed by mothers in a variety of naturally occurring situations. However, BELSKY (1986) has recently argued that whereas studies such as those reviewed in Chapters 3 and 4 tended to focus on either attachment behaviour or social development, where data can be examined longitudinally, the two are effectively linked. His point is that by examining real life behaviour at a later age, predictive validity, and therefore ecological validity, are thereby conferred on the 'Strange Situation' of which he was a former critic (BELSKY & STEINBERG, 1978; BRONFENBRENNER et al, 1976).

He cites as exemplifying his new position the effect of juxtaposing VAUGHN's findings that non-maternal care initiated in the first year was associated with insecure-avoidant attachment to the mother (VAUGHN et al, 1984), with SCHWARTZ's findings that children starting day care in the first year are more aggressive and less cooperative as pre-schoolers (SCHWARTZ et al, 1974). Taken together, he argues,

'even though the evidence is not without its inconsistencies, a circumstantial case, remarkably consistent with attachment theory, can be made that infant day care is associated with insecure-avoidant attachment during infancy and heightened
aggressiveness and non-compliance during the pre-school and early school-age years'.

The present author had, it will be recalled, earlier made the point (cf Chapter 8) that the narrow definition of socio-emotional development, concentrating on attachment behaviour, was, to say the least, misleading, and that various aspects of behaviour should be included in any viable definition of socio-emotional behaviour. Therefore, whilst welcoming a longitudinal approach embracing a broader spectrum of developmental outcomes, the author must nevertheless make the following points. Firstly, the majority of studies failed to make a definite association between insecure-avoidant attachment and day care. Recent exceptions, subsequent to the author's review of the literature, are studies by SCHWARTZ (1983) and JACOBSEN & VILLE (1984), which did find associations between day care in the first year and anxious-avoidant behaviour in the reunion episodes of the 'Strange Situation'.

Secondly, insecure-avoidant attachment is not found in all infants of working mothers, and, according to AINSWORTH et al (1978), may also be found in some infants of non-working mothers. It could, therefore, be the case that both insecure-avoidant attachment and later peer orientation and aggressiveness are each linked with some other as yet undefined variable in the human ecological environment. It therefore becomes even more important to examine behaviour in real-life settings and to avoid the classical
laboratory experiment which focusses on one variable and 'controls out' all others.

A further point of issue is that whilst there may be some evidence for infants to avoid or maintain distance from the mother in reunion episodes in the laboratory, such behaviour in real-life settings may not be indicative of insecure-avoidant attachment, but rather might be indicative of learned independence from the mother. Whilst there was no evidence in the present study that infants of working mothers were more independent than infants of non-working mothers, this view has been put forward by CLARKE-STEWART & FEIN (1983), and is consistent with RICCUITI's (1976) conclusion that day care, under favourable circumstances, might be of benefit in allowing children to learn to adapt to unfamiliar social situations. Indeed, several earlier studies did find that working mothers encourage independence and maturity in their children to a greater extent than non-working mothers (YARROW, 1964; BIRNBAUM, 1971; WOODS, 1972; HOFFMAN, 1974).

3.3 Social competence and emotionality

The results for sociability and social skills showed that competence was not a function of the number of social experiences to which a child was exposed. If such had been the case, infants of working mothers would presumably have been more skilled than infants of non-working mothers, but this was not found to be the case.
(1) Aggressiveness: It was found in the present study that at 15 months of age, infants of working mothers were bolder in approaching and vocalizing to familiar adults and other children, but on the other hand, were more shy with unfamiliar adults and more aggressive to other children. Aggressiveness was also identified by the section of the SEDQ asking mothers about 'problems' or 'areas of difficulty' with their infants. As discussed in Chapter 10 (Section 2.5), this part of the SEDQ was designed on similar lines to the Behavioural Screening Questionnaire, and whilst the number of citations was too small for between-groups analysis, more behavioural 'problems' were reported in the working than in the non-working group. Significantly, the most common 'problems' reported were temper tantrums and aggressiveness.

The results from the summary scale Emotionality showed that whilst there was very little difference between infants of working and non-working mothers in the range and expression of positive or adaptive emotions such smiling, laughing, kissing, cuddling or crying when hurt, hungry or tired, there was some evidence that infants of working mothers were more likely to become angry when opposed, to display temper tantrums, to be jealous of attention to other children, to be defiant, to hit or kick their parents and to be spiteful to other children.

Taken together, it appears from the mothers' reports that aggressiveness is being displayed at a very early age, and that the SEDQ is capable of identifying it.
There is little research evidence available on differences in social competence or in emotional expression of the type investigated here, especially at such an early age. Where studies have included similar behavioural measures, they have tended to focus on school-aged children, and show that children whose mothers work are more peer-oriented, less compliant, and more aggressive (cf. Schwartz et al., 1974; Moore, 1963, 1969). Recently, Haskins (1985) found that children spending their first year in day care were more aggressive than children who entered day care later, although 'excessive' aggressiveness tended to diminish over time. In the earlier study by Barton & Schwartz (1981), as previously discussed, the authors were less sanguine, reporting that aggressiveness could still be observed in 9-10 year olds who entered day care before the age of 18 months. In pre-schoolers tested using Richman & Graham's (1971) Behavioural Screening Questionnaire, day care children aged 3½ were again found to have more temper tantrums than home-reared children (Rubenstein & Howes, 1979).

In the present study, although only descriptive statistics could be used, such behaviours were found more often in boys, regardless of whether or not the mother worked, but tended to increase in frequency if she did work. The tendency for boys of working mothers to show more aggressive behaviours was earlier documented by Schwartz, (1975).
However, even assuming that reliable differences in aggressiveness can be identified between children of working and non-working mothers, how seriously should the finding be taken? Bearing in mind that RUTTER (1981) considered aggressiveness in day care children to be within 'normal' limits, perhaps it would be unwise to attach too much importance to its manifestations here. It could, for example, be alternatively construed as adaptive behaviour in terms of the environments in which children of working mothers find themselves, particularly where group care is concerned. After all, children eventually have to learn to fend for themselves amongst larger numbers of children than they normally encounter at home, and if aggressiveness is required to establish and maintain a place amongst one's peers, then it should not be too surprising to find that it develops early. This being the case, one can posit that home-reared children might in fact be disadvantaged in comparison if their first major experience of interaction with their peers does not occur until the school years.

(ii) Behavioural disturbance: With respect to behavioural disturbance, there was no evidence in the present study to suggest that infants whose mothers worked displayed more self-punitive, fearful or excessive behaviour, although more fearful behaviour was found in day care children at 3½ years of age in the study by RUBENSTEIN, HOWES & BOYLE (1981), referred to above.

There was, however, some evidence that girls showed more disturbance than boys; as girls whose mothers had not worked showed
the least disturbed behaviour, this suggests that maternal employment, even when part-time, has a greater effect on girls than boys.

As has already been stated, there is a paucity of research evidence on sex differences in outcome measures as a function of maternal employment. However, if fearful behaviour is construed as indicative of general anxiety and insecurity, there is some evidence that daughters of working mothers are more prone as they get older (7th and 11th grade) to neurotic and psychosomatic complaints (cf BURCHINAL, 1973), although NYE et al (1963) had earlier found no differences in anxiety as a function of employment status. However, by adolescence, HOFFMAN (1979) claimed that maternal employment suited daughters' needs, making them more outgoing, independent and better adjusted on social and personality measures.

The apparent transition from early disturbance to later social and personality adjustment can perhaps best be understood in terms of the wider issue of the meaning of a mother's employment to her family, and of a girl's identification with her mother. With respect to the meaning of employment, it was suggested in Chapter 7 (Section 2.5) that when maternal employment stems from financial necessity, it is both respected and appreciated (cf WOODS, 1972), whereas employment unrelated to family survival is construed by the child as rejecting behaviour. Whilst infants in the present study were obviously too young to rationalize their mothers' employment
in such terms, it was interesting to find that the most disturbed behaviours occurred in daughters whose mothers came from social class groupings 1 and 2, the group who were more likely to work for career than financial reasons. It was also interesting, without attaching too much significance to its implications in terms of the above, that infants of working mothers showed a greater capacity for empathy.

In Chapter 7 (Section 2.6) it was reported that HARTLEY (1960) and DOUVAN (1963) found that for girls, maternal employment resulted in greater admiration of the mother and aspirations to emulate her role. In the present study, the opposite was found; women whose mothers had worked when they were children were themselves LESS likely to want to work after having children. Nevertheless, it may be the case that initially maternal employment has a greater effect on girls' general feelings of security, but that with increasing awareness of the female role, the mother who also works is seen as being more accomplished, and therefore more admirable, than the home-maker, even though subsequently, as mothers themselves, they reject a dual role.

3.4 Emotional Security

As was the case with emotionality, emotional security has, for the most part, been narrowly defined in the corpus of studies reviewed to focus on infants' behaviour when separated from, and more recently, when reunited with the mother. In the present study, the
parameters of emotional security were widened to embrace separation and reunion behaviours, to separate the former from fear of strangers, and to look at the overt expression of emotional insecurity (having already examined the expression of emotional security in the previous section) in the ability to tolerate departures from normal routines, and independence.

(i) Fear of strangers: In Chapter 4 (Section 3.1), a case was made for treating fear of strangers as a separate infant response from separation anxiety, and evidence was adduced to show the universality of fear of strangers in the United Kingdom and the USA (cf EMDE et al, 1976; SCHAFFER, 1966; TENNES & LAMPL, 1964). Most studies reviewed in Chapter 4 found that fear of strangers was manifested at about 8 - 9 months, usually after the development of a specific attachment to the mother (cf SCHAFFER, 1966), although, it was pointed out, MORGAN & RICCIUTI (1962) considered fear of strangers to peak in the second year.

Using the SEDQ, information was gathered about infants' responses to strangers in a variety of naturally occurring situations, thus avoiding the rather controversial and artificial stranger approach paradigms. In this way the debate over 'infant-controlled' as opposed to 'stranger-controlled' situations was also avoided; after all, in real life the infant rarely has the opportunity afforded in the laboratory of controlling strangers' approaches and interactions. The studies reviewed would lead to the expectation that all infants would show some fear of strangers, hence the
frequency of such behaviour was considered to be a useful indicator of differences in what should be a universal behaviour in such a group.

In relating fear of strangers to maternal employment, the majority of studies have relied on the 'Strange Situation', in which fear of strangers is only secondary to the main purpose of the experiment, namely behaviour on separation from and reunion with the mother, a paradigm which, as previously pointed out, confounds the effect between a mother leaving and a stranger approaching, particularly as fear of strangers frequently occurs in the presence of the mother.

Against this background, it was interesting to find in the present study that fear of strangers did appear to be universal, and that whilst infants whose mothers worked showed no more fear of strangers than those whose mothers did not work, daughters of working mothers showed the greatest fear, whilst daughters of non-working mothers showed the least. As argued in the previous section, it seems that maternal employment initially has a greater effect on the security of girls than it does on boys.

Traditional cognitive explanations described in Chapter 4 (Section 3), would suggest that fear of strangers in infants of working mothers reflects learned attitudes and evaluations of experiences with strangers in terms of antecedent experience (cf BRONSON, 1978). Whilst on the one hand infants would have familiarised
themselves with the caregiver, and probably formed an attachment to that person within their hierarchy of attachments, they have nevertheless had the initial experience of associating the presence of an unfamiliar figure with the disappearance of the mother (cf LEKLY & SCHWARTZ, 1979). However, the present results suggest that the greater number of contacts with strangers occasioned by the mother's employment serves to reduce fear in boys whereas it enhances it in girls.

The question again arises of whether or not the fear response should be considered a detrimental outcome of maternal employment in girls, or as a more sophisticated response to it. Whilst the former view has generally held sway, more recently alternative accounts of such effects have been proffered; KALTENBACH et al (1980), for example, view fear of strangers as a sophisticated and adaptive response to uninvited interpersonal interaction, comparable to the initial wariness of strangers manifested by all age groups. Indeed, as soon as infants are capable of understanding, they are nowadays taught not to speak to or go with strangers, reflecting society's perception of the threat arising from the approach of a stranger.

(ii) Separation from mother: As stated above, anxiety on separation from mother has been the most widely investigated aspect of socio-emotional development, as it is considered to be the signal indicator that an attachment has been formed to the mother. As reported in the previous chapter, there was no evidence in the
present study that maternal employment resulted in increased distress at separation from and reunion with the mother. In the following sections, an attempt will be made to account for the finding that, contrary to prediction, infants of working mothers in the present study did not experience more distress at separation than infants of non-working mothers.

In terms of attachment theory, this pattern is indicative of secure attachment. According to BOWLBY (1973) and AINSWORTH et al (1978), absence of the mother is not the critical variable, but rather it is the availability of the mother, or other attachment figure; past experience is therefore important, for if the infant's expectation is that his mother is unavailable, high anxiety will result, whereas if the expectation is that the mother is available, or will return, there is only mild anxiety. As TIZARD & TIZARD (1971) describe it, the anxiety experienced is a function of the children's confidence in their attachment figure's availability.

In the present study, all the infants came from stable backgrounds in which the mother was always available, except for periods of part-time employment. Also, the majority of infants whose mothers worked were cared for in her absence by a relative, usually the grandmother, to whom an attachment would also normally be expected to develop (cf RICCUTI & FORESKY, 1973). Consequently, as stability both in the home and in substitute caregiving was shown in MOORE's longitudinal study to be of vital importance, this supports the present finding that separation did not result in
increased distress for infants of these part-time working mothers (cf MOORE, 1963, 1964, 1969).

Logically, it makes sense in terms of social learning theory for infants who are accustomed to being separated at regular intervals from their mothers to be less distressed because their experience confirms that although mothers may leave them, they always return. Infants without this regular experience of a mother's return contingent upon her departure do not have a similar schema linking the two events (cf DOYLE, 1975; DOYLE & SUMKERS, 1975). Reinforcing this sequence is the daily occurrence, which appears to be totally overlooked in experimental studies, that every day a father to whom the infant is also usually attached (cf SCHAFFER & EMERSON, 1964; KOTELCHUCK, 1972; KAGAN et al, 1975), and possibly also older siblings, departs for work or school, and with equal regularity returns.

The degree to which emotional security is affected by maternal employment has also been shown to vary with the age at which substitute caregiving begins (cf SCHWARTZ et al 1974; VAUGHN et al, 1980). According to BOWLEY (1966), the elements of attachment behaviour are established in the 4th to 6th month, with attachment being manifested at 7 - 8 months in the distress occasioned by the mother's departure. The critical time for commencement of maternal employment has therefore usually been taken as the first year of life. It was against this background that the prediction of more distress at separation in infants of working mothers was made in
the present study, as maternal employment was expected to begin within a year of giving birth. It transpired that 15 of the 20 mothers working at the point of contact had resumed employment before the infant was one year old, and yet, as has been shown, these infants did not show more upset than infants of non-working mothers.

However, BELSKY (1986) has recently suggested that distress is linked both to the age of the infant when maternal employment begins, and to the number of hours the mother works, with the most distress being observed in cases where the mother begins employment in the infant's first year of life AND works for more than 20 hours per week. As mothers in the present study were working part-time, it seems that the number of hours worked may contribute as much, if not more, to the effect than the age at onset of employment. In conclusion, it seems reasonable to suggest that for part-time working mothers, the mother has the opportunity of being physically as well as emotionally available for a sufficient part of the infant's waking day to enable attachment to develop satisfactorily and to be maintained in terms of the infant's security during her absences for the purposes of part-time employment.

3.5 Theoretical aspects of socio-emotional development

(1) Bonding and 'Sensitive periods': In Chapters 3 and 4 evidence was adduced from animal and human studies to demonstrate the existence of a special relationship between mammalian infants and
their mothers. The continuum is undeniable even though the mechanisms by which it is achieved and the period required for its development may differ, and undoubtedly, for infants with varying lengths of dependency, the function of the relationship is survival until maturity and independence are attained.

Whilst for some species, there clearly exists a 'sensitive period' for the activation of bonding of an olfactory nature, the evidence for a similar 'sensitive period' in human infants, as argued in the KLAUS-KENNELL model, is less convincing. KLAUS & KENNELL maintained that hormonal changes 'prime' the human mother to behave maternally as soon as an infant is born. However, in the present study, as in the earlier studies by ROBSON (ROBSON & KUMAR, 1980; ROBSON, 1981), the finding that a number of mothers report an initial indifference to their infant immediately following the birth suggests that the mechanism promoting this early relationship is unlikely to be purely hormonal. It seems more likely that the pattern of hormonal influences would be the same for all mothers, but that individual differences in levels would contribute to observed differences in effects. Arguably, the effects of analgesia and other obstetric practices could also interfere with what might otherwise be a universal behaviour, but whilst on the one hand, the degree of medical intervention in childbirth has increased, on the other hand, there has also been an increase in compensatory practices such as extended contact.
Nevertheless, there is also evidence to suggest that this early relationship is affected by psychological as well as physiological factors. An example from the present study is that the perception of pain, which is known to vary between individuals, can in labour influence the mother's initial emotional reaction to her infant.

Clearly, as pointed out by Wilson (1980), attachment can and does develop in the absence of prior initial bonding of the kind referred to in the Klaus-Kennell model, although this would provide an optimal basis for its later development, but the case has not been conclusively made for the existence of 'sensitive periods' in human mother-infant dyads, homologous to that found in other mammalian species.

(ii) Separation-induced distress: In Chapters 3 and 4, the evidence was also adduced for separation-induced distress being an homology across related mammalian forms. Whilst such distress undeniably occurs as a response to separation, as Cairns (1977) pointed out, the distress response diminishes over time as adaptation occurs to the changed circumstances. This habituation reflects the fact that prolonged activation of the distress response would be as detrimental to survival as would its total absence. Such plasticity therefore also serves biological survival, but, as shown in studies such as those of Harlow's monkeys, or maternal deprivation in humans, with varying degrees of psychological integrity.
As argued in Section 3.4 above, adaptation to separation also occurs in infants, and can again be interpreted as adaptive behaviour.

(iii) Attachment theory: The hallmark of attachment, according to AINSWORTH (1973), is behaviour that 'promotes proximity to or contact with' attachment figures in order to ensure biological survival. An infant's experience leads to expectations concerning the caregiver's accessibility and responsiveness, and in a securely-attached infant, gradually permits the infant to tolerate longer periods of the caregiver's absence without undue distress.

Once a secure attachment has been formed, usually by the second year of life, although it may take longer, the attachment is 'amazingly persistent and is capable of enduring an extraordinary amount of absence, neglect or abuse' (AINSWORTH, op. cit.). In the present study, there was no evidence that attachment was negatively affected by either the mother's intended or actual employment status.

Attachments are also formed to a limited number of other figures, developing at the same time as attachment to the primary caregiver, and is in proportion to the strength of the primary attachment (cf SCHAFFER & EKERSOK, 1964; KOTELCHUCK, 1972; SMITH, 1980).

The important points to be taken from the theoretical accounts and experimental studies reviewed earlier are:
1. Regardless of whether or not initial 'bonding' occurs, an attachment is usually formed to the primary caregiver in the first year of life.

2. Attachments are also formed to a limited number of others.

3. Provided that the infant's expectations of the primary caregiver's availability and responsiveness are not violated during the period of attachment formation, the attachment will subsequently be strong enough to tolerate periods of the caregiver's absence without undue distress.

4. Adaptation to increasing periods of separation without distress is not only desirable, but is essential for ultimate biological, psychological and social survival.

Mapping a physiological perspective onto the foregoing, it has been shown in animal studies that an optimal level of stress is beneficial in stimulating growth and learning (cf KRECH, ROSENZWEIG & BENNETT, 1960; ROSENZWEIG, KRECH, BENNETT & DIAMOND, 1960; LEVINE, 1968). Similarly, in human infant populations, optimal levels of stress promote growth and independence (cf AINSWORTH, 1963, 1964; ANDERSON, 1972).

From this point it can be argued that if separations from the mother or primary caregiver can be managed so that levels of stress do not exceed some 'optimal' level, by which it is meant that such separations do not violate the infant's expectations or cause undue distress, then they should be perceived as beneficial in contributing to the infant's ultimate independence from the caregiver, the desired end 'product' or state, rather than, as in
BOWLBY's (1973) account, cumulative and detrimental, such that the 'safest dose is a zero dose'.

3.6 Future directions for research into the effects of maternal employment on infant socio-emotional development

There remain a number of areas in which further research could add to the existing knowledge about the effects of maternal employment on socio-emotional development. Following on from the present study, further development of the Socio-emotional Development Questionnaire would be both of interest and utility, especially if it could be shown to have predictive validity by mapping onto behavioural screening questionnaires for older children. This would provide the researcher, once its psychometric properties had been established, with a useful early diagnostic indicator of difficulties in socio-emotional development, and behavioural problems, which could be easily and economically administered.

Another pressing requirement, given the recent attention to increased aggressiveness in children who entered day care in the first year of life, is to confirm or refute RUTTER's (1981) contention that such aggressiveness remains within 'normal' limits. In order to pursue this issue, longitudinal studies are required, with appropriate controls, to establish whether increased aggressiveness in pre-school and primary school children has any detrimental long-term effects on their psycho-social development, delinquent tendencies, or academic achievements.
For younger children, further research along the lines of the present study, could usefully be directed towards predictions derived from attachment theory, using ecologically-valid environments. Useful comparisons of aggressiveness in pre-school-age children could be made between groups reared at home, by childminders, or in day nurseries. Secondly, the effects of part-time maternal employment could be further explored in comparisons with full-time, as well as non-working groups.

A further area which has received scant attention in older children is at the heredity-environment interface. Whilst differences in temperament are well-documented in infants, there has been little research into temperamental differences in older children. When related to maternal employment, for example, it could be the case that effects of maternal employment on socio-emotional development are mediated by the child's temperament, such that undesirable effects are more likely to be found in 'difficult' or 'slow-to-warm-up' children. As described in Chapter 5, the 'difficult' child is already more disposed to negative responses to new stimuli, slowness in adapting to change and a predominance of negative mood and intense reactions, including violent tantrums. Such a child does not easily elicit the maternal behaviours that facilitate positive attachment to the mother, and is less likely to 'maintain' the mother in the social interactions necessary for socio-emotional development.
Finally, an impoverished area both theoretically and experimentally, is the course of socio-emotional development in children in the years following development of attachment to the mother or primary caregiver. How, for example, is attachment expressed and motivated during these years? If, as BOWLBY claimed, 'some maturational threshold is passed' at about three years of age (BOWLBY, 1969), and the child enters a partnership with the mother, what are the parameters of such a partnership, what are the inputs by each partner, and what constitutes a 'good' or working partnership as opposed to a 'bad' one? If, as ERIKSON (1963) claimed, and experimental studies indicate, the peer group replaces the mother as the significant social figure, how is the transition effected, and is it in fact merely accelerated by maternal employment, as some studies indicate?

Any further research should, however, heed the caveat deriving from the present study, namely that assumptions of homogeneity may well be invalidated when contentious issues such as maternal employment or child-rearing ideology are involved, as the formation of such attitudes begins deceptively early and remains remarkably resistant to change.

4 Maternal Satisfaction

4.1 The meaning of 'satisfaction': OAKLEY (1980) made the following statement at the conclusion of her study of women:
'There is no doubt that the central dilemma of women in becoming mothers, which is their loss of identity, is occasioned by our present opposition between work and family as alternative structures of satisfaction.'

There are two issues embedded in this statement; firstly, 'loss of identity' - RAPOPORT & RAPOPORT (1969) stated that maintenance of personal identity becomes a problem when one departs from the standard patterns of behaviour that are institutionally supported in the traditional role structures' (p. 25).

As has been previously argued, the standard pattern of behaviour which is institutionally supported in our society in reference to motherhood is for the mother to give up her career in order to care for her child. Whilst this continues the socio-cultural norm, women will continue to experience some loss of identity in the transition from employment to motherhood. This sense of loss was found in the present study, the 'loss' clearly referring to those aspects of identity associated with careers, which, as was shown, often spanned a decade.

The second issue arising from OAKLEY's statement is that work and family represent 'alternative structures of satisfaction'. It has been the author's contention that satisfaction cannot be thus arbitrarily divided. Whilst women clearly differ in their levels of
career orientation and are, therefore, likely to differ in the amount of satisfaction they derive therefrom, it was shown in the present study that motherhood can be just as important and satisfying to the highly career-oriented as to those for whom employment represented a temporary phase prior to achieving their main objective of motherhood.

Whilst PISTRANG (1982) attempted to circumvent the issue by subtracting a score for motherhood satisfaction from a score for work satisfaction, the most common approach has been to ask mothers to rate their satisfaction with 'mothering' or motherhood. In the author's opinion this presents a qualitatively different account of the reality of maternal satisfaction. As the results presented in Chapter 13 clearly indicate, mothers can simultaneously be satisfied on different levels, alternatively whilst a mother may be quite satisfied in her role as a mother, she may well experience feelings of 'missing' out on other levels.

Because 'satisfaction' as discussed thus far can be criticised for being too subjective, value-laden and biased, a number of dimensions were brought together in the present study to obtain the composite measure of 'maternal satisfaction'. This resulted in a broader definition of satisfaction than is usually found, and provided scope for the inclusion of more objective indicators such as physical health, incidence of depression, and financial well-being, in addition to the usual rating scales, completed in this case both by the mothers themselves and the author. The use of
convergent data has been called for by reviewers of the literature, and there is little doubt that it increases the validity of abstract measures such as 'satisfaction' whilst, at the same time, 'filling out' the measure and increasing understanding of its meaning to mothers themselves.

4.2 Congruence

Having discussed the difficulties of a measure such as maternal satisfaction and delimited its parameters, attention is now turned to the role of 'congruence' as a mediator of satisfaction. 'Congruence', it will be recalled, was used here to represent the compatibility between a mother's actual employment status and her level of career orientation, and as the results presented in the previous chapter indicated, as such it proved to be very powerful mediator of satisfaction.

Other studies have reported similar results, although congruence has been defined differently. HOCK (1980), followed by STUCKEY et al (1982) used the term to refer to the relationship between employment status and childrearing attitudes, or what HOCK deemed the 'mesh' between a mother's perception of her own needs and her infant's need for exclusive maternal care. She states

'Perception of infant needs may bear on a mother's choice of work roles or on the degree of satisfaction the maternal role provides to a working or non-working mother'
However, many mothers' employment status was not related to perception of either infant or personal career needs, but rather was a response to economic circumstances. Hence some mothers were working when they would have preferred to provide exclusive maternal care for their infants. This combination was not identified in HOCK's analyses, and yet, clearly, it would bear strongly on maternal satisfaction.

4.3 Effects attributable to incongruence

Mothers who remain at home to care for their infants when they would prefer to continue their careers represented a considerable minority (over 30%) in the present study. If such mothers are less satisfied, as indicated both in the present and other studies (cf YARROV et al, 1962; HOFFMAN, 1974; HOCK, 1980; STUCKEY et al, 1982), it is clearly important to understand how their dissatisfaction is manifested.

The broad definition of maternal satisfaction employed in the present study, which included maternal welfare, gave more insight into the effects of incongruence on the mother than is usually found in studies of maternal satisfaction. Mothers who were designated incongruent perceived their physical health to be less satisfactory and they suffered more frequently from depression. These findings are consistent with other studies discussed in Chapters 6 & 7. According to HOCK (1980), for working mothers, incongruence due to maternal employment is also likely to result in
role conflict, anxiety and guilt, and may negatively affect the mother-infant relationship whereas dissatisfied non-working mothers stress the sacrifices involved in motherhood (cf. Birnbaum, 1971; Hoffman, 1974) and obtain lower scores for measures of adequacy of mothering.

In the present study, anxiety, feelings of irritability, stress and guilt were not significantly different in the incongruent group, although results were in the predicted direction. With respect to guilt, for example, more mothers who worked from choice experienced guilt than mothers who worked from financial necessity. The direction of this result was the same as in the findings of Spargo (1968) and Birnbaum (1971), and is concordant with the views of Woods (1972) and Wallston (1973), namely, that the cultural milieu contributes to feelings of guilt in working mothers, but effects may be mediated by the reasons for employment. Where employment can be construed as contributing to the well-being of the family by augmenting limited financial resources, less guilt is experienced.

With this in mind, it was interesting to note that two-thirds of the mothers deemed incongruent reported financial worries. From the foregoing discussion, it would appear, somewhat ironically, that if the incongruent mothers (most of whom, it will be recalled, were not working), had taken employment, they would, at a stroke, have ameliorated their financial situation, reduced their anxiety, and increased their levels of satisfaction by becoming 'congruent'.

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without suffering unduly from guilt as they could have felt instrumental in resolving the difficulty.

4.4 Effects on the children

The post-hoc analysis of socio-emotional development in terms of the mothers' congruence is important, as it suggests that dissatisfaction in the mother is not necessarily transmitted to the child. In the earlier studies by YARROW et al (1962) and HOFFMAN (1963), dissatisfaction was claimed to result in less adequate mothering, which, presumably, had some demonstrable effect on the child. HOCK (1980), for example, found that incongruence in working mothers negatively affected the mother-child relationship. However, as previously discussed, working mothers do attempt to compensate for their absences, occasionally going too far in over-stimulating their infants (cf LEVIS et al, 1984). More generally, it is found that mothers who enjoy their work have more positive interactions with their children than less satisfied mothers, regardless of employment status, and, as discussed in Section 4, successful mother-infant social interaction is at the root of developing secure attachments.

Whilst mothers frequently sought to escape boring routines and to increase contact with other adults through their employment, there was no evidence in the present study that maternal employment represented emotional rejection of the child, as found by MOORE (1963, 1969). The possibility did, however, suggest itself in one
working mother from the pilot sample, who was admittedly atypical. This very attractive young mother resumed her job as an airline stewardess, flying full-time with 2-3 days away from home at a time, when the infant was four months old. She blamed the infant for causing her pain and losing her figure, albeit temporarily, and was very cold towards the child, never speaking to him or holding him except for caretaking requirements, and even feeding him at arm's length with his back towards her, thereby avoiding eye contact.

4.5 Future directions for the study of maternal satisfaction

All the results from the present study indicated that congruence between career orientation and employment status is, as the author initially contended, the key to understanding maternal satisfaction. Whilst in the present study it was applied to part-time employment with good effect, its full potential as a mediator of maternal satisfaction and its explanatory powers have not yet been fully exploited. It is suggested that, instead of dividing mothers into groups according to whether or not they work, there is more to be gained from the division being made on the grounds of congruence as here defined. It would be useful to re-examine maternal satisfaction with allocation to groups being made along these lines, and using a variety of indicators, as in the present study, to converge upon the measure of 'satisfaction', in order to see whether similar results occur when employment is full-time.
In the following diagram (Figure 11), the relationships between maternal employment, infant socio-emotional development and maternal satisfaction have been depicted graphically to reflect the findings of the present study and the literature reviewed earlier.

In this model, it is proposed that the education, qualifications and training in the late school and post-school years determine a woman's level of career orientation, which then remains stable through her early career, and persists through marriage, pregnancy and childbirth until it has, of necessity, to be re-examined in order to make decisions regarding her employment status as a mother. It is still likely to remain unchanged, even though her actual employment status may be in conflict with it, resulting in incongruence and affecting her role satisfaction.

A mother's own childhood experiences of having a working or non-working mother, and the attitudes of society towards maternal employment, will influence her attitudes towards childrearing, in particular her perception of whether or not a child needs the exclusive care of its mother.

Career orientation, attitudes to childrearing and maternal employment, motherhood importance, and external pressures such as the family's financial situation and prevailing societal attitudes to maternal employment, will all be implicated in the decision about a mother's employment status after childbirth. On the basis
of that decision, a mother can be designated either congruent or incongruent.

Whilst congruence will be the major mediator of a mother's role satisfaction, her level of satisfaction will also be affected by, and reciprocally may affect, her personality, general health, emotional state, perception of pregnancy and childbirth, attachment to infant, and marital relationship.

Turning to the infant, a baby's birth experiences, developmental status, temperament, sociability and emotionality will exert an effect both on the quality of mother-infant social interaction and the infant's socio-emotional development, the latter also being affected by the quality of interaction with the mother.

There is less evidence, as indicated by broken lines in the model, to suggest links between maternal role satisfaction and infant socio-emotional development, or role satisfaction and mother-infant social interaction.

Bearing in mind that HOFFMAN (1974) complained that studies of maternal employment were atheoretical, the model is proposed as a step towards integrating the present findings with the existing knowledge of such relationships into a theoretical account upon which further study could be based.
5 **Concluding remarks**

In the present study, an attempt was made to progress beyond the unilinear model so often employed in previous studies of the effects of maternal employment on some dependent outcome in the child.

Considerable efforts were made to overcome the frequent criticism of previous studies that no allowances were made for differences between groups ante-dating maternal employment. It is clear from the present study that even when groups are carefully selected, matched as far as possible on socio-demographic variables, and screened for differences on a wide variety of indicators, it is nevertheless likely that differences will still be found in attitudes towards a career and child-rearing that will have their antecedents in factors far removed temporally from decisions about employment after childbirth.

As was shown in the literature review, the focus of experimental studies of the effects of separation from the mother has been on separation resulting from a mother's employment. There have, as yet, however, been very few studies of the effects of part-time maternal employment.

For some women, especially where societal pressures militate against mothers working whilst their children are still very dependent, the decision on whether or not to resume employment may
not be easy, particularly if they have a high level of career orientation and have devoted a number of years to the furtherance of that career. Similarly, the decision is not an easy one for mothers whose attitudes to child-rearing demand exclusive maternal care for the child, whilst financial circumstances demand that they contribute to the family income.

As has been shown most clearly in the present study, resolution of the decision about employment must be in the direction resulting in congruence between the mother's level of career orientation and employment status if she is to derive maximum satisfaction from her role. Decisions resulting in incongruence between these factors may affect the mother's physical health, increase her chances of suffering from depression, anxiety, stress and irritability, and may put pressure on the marital relationship. Whilst in the present study there was no direct evidence that incongruence had any deleterious effects on the child, other studies have shown negative effects on the mother-child relationship and adequacy of mothering (cf. YARROW et al., 1962; HOCK 1978, 1980).

If a mother's decision is to resume employment, for whatever reason, there are a number of points to be made in favour of such employment being on a part-time basis:

Part-time employment allows the mother to spend longer periods with her child than does full-time employment, and therefore increases the chances of development of secure
There are few demonstrable effects on infant socio-emotional development as a function of part-time maternal employment.

Part-time employment provides benefits to the highly career-oriented mother in enabling her to achieve congruence and thereby increase her role satisfaction.

Part-time employment provides benefits to the poorer families by increasing their income.

Part-time employment provides benefits to society by returning some highly trained women to the labour force and filling other employment gaps unsuitable for full-time positions.

For these reasons, the part-time employment option should be encouraged for women wanting to work, whether for personal or financial reasons. Indeed, as shown in Chapter 6, most women returning to employment after childbirth do take this option, which may well be instrumental in aiding the 'mesh' between mothers' perceptions of their own needs and those of their infants.

However, for society as a whole, maternal employment remains an emotive issue (as discussed in Chapter 6), conjuring up stereotypes of unhappy infants, 'latch-key kids' returning to empty homes, and
maladjusted or even delinquent teenagers. Mothers themselves frequently feel guilty if they work, especially if it is to further their own careers, and are often tired and/or depressed through their attempts to combine running a home and a job satisfactorily, often with little tangible support. In the present study, society's general disapproval of maternal employment was frequently voiced, particularly by non-working mothers, in expressions such as 'Mothers should stay at home to look after their own children' and 'Women who want to work should not have children', reinforcing OAKLEY's (1980) conclusion that 'the cultural dogma is that motherhood and employment are mutually exclusive'.

In fact, the social and legislative infrastructure of our present society reinforce such dogma. Statutory maternity leave, with full benefits, is only available for full-time employees, and commits them to return to full-time employment at the end of this period, or to forfeit their benefits. This may be suitable for the small residual of women wishing to pursue their careers full-time, especially if they have invested heavily in its development, but it provides little tangible or psychological support for the majority of working mothers.

If, as argued by YARROW et al (1962), satisfied mothers are the best mothers, regardless of their employment status, then attitudes to maternal employment will have to change. Societal attitudes, whilst notoriously resistant to change, are not immutable, as was shown during World War II when women left their homes in droves to
support the war effort. Results of studies of infant socio-emotional development, including the present study, suggest that if society is genuinely concerned about the effects of maternal employment on young children, then, without entering a political argument,

(i) Statutory maternity leave should be increased to one year, in line with some other European countries, by which time most infants should, all other things being equal, have developed a secure attachment enabling them, with the proper substitute care, to tolerate daily separations from the mother without undue distress.

(ii) As part-time employment appears to attenuate some of the observed effects on socio-emotional development, and appears to promote independence, and reduce fear of strangers, mothers should be encouraged to, and employers should facilitate, staggering their return to full-time employment by the provision of part-time schemes for a further period following extended maternity leave.

(iii) Child benefits should be increased to enable all families to maintain a child during its first year so that mothers are not forced to work from financial necessity.

(iv) Public day nursery places should be extended beyond the provision of places for families meeting multiple criteria.
(v) Registration and supervision of childminding facilities should be more vigorously pursued.

(vi) The private sector should take more responsibility for the provision of maternity leave schemes and creches for female, or indeed, male, employees.

Not until society makes changes such as these will maternal employment begin to lose the social stigma that should have been eroded with the publication of research findings such as those discussed in the review of the literature. Dissemination of research findings, adequate provision of alternative forms of child care, adequate State benefits, flexibility on the part of employers, and last but by no means least, attaching greater importance to the role transitions women have to undergo on becoming mothers, including greater awareness of the psychological concomitants of the hormonal processes involved in the transition, should all help to pave the way to a situation where women can freely exercise the choice of whether or not to work after their child is born. Only then will women be able to achieve maximum role satisfaction through the selection of their preferred option, congruent with their level of career orientation, and untrammelled by harmful and pervasive feelings of guilt.

With respect to socio-emotional development in the children of working mothers, the research effort expended into the examination of differences in attachment in infancy seemed, until recently, to
have been disproportionate to the theoretical importance and conclusiveness of the findings. However, now that links have been found between insecure attachment in infants entering day care in the first year of life, and aggressiveness, non-compliance and social withdrawal in the pre-school years, efforts should now be directed to examining such behavioural differences longitudinally. Instruments such as the SEDQ for infants and the Behavioural Screening Questionnaire for older children, should help to establish whether the suggested links between early day care and later aggressiveness are grounds for concern, or whether they represent, as only tentatively hypothesized hitherto, unexpectedly early and sophisticated responses to an environment characterized by assertiveness and aggressiveness at the expense of the weak and submissive.