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Pepperdine University
Graduate School of Education and Psychology

PRENATAL PSYCHIC EXPERIENCE: A SYSTEMATIC PSYCHOANALYTIC
EXPLORATION OF THE EMOTIONAL LIFE OF THE FETUS

A clinical dissertation submitted in partial satisfaction
of the requirements for the degree of Doctor of Psychology

by

Joseph H. Turner, M.S.

September, 2010

Edward Shafranske, Ph.D. – Dissertation Chair

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This clinical dissertation, written by

Joseph H. Turner, M.S.

under the guidance of a Faculty Committee and approved by its members, has been submitted to and accepted by the Graduate Faculty in partial fulfillment of the requirements for the degree of

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DEDICATION

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ACKNOWLEDGEMENTS

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- Psychoanalytic psychotherapy for adults in a community clinic setting
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 - Feedback and consultation for prospective and new adoptive parents

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- Assessment and Evaluations of families and children
- Parent-child dyadic, child play therapy, parenting classes
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- Conducted ongoing individual adult and child psychotherapy
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8/01 – 6/02

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 - Supervised research staff in study conduct, data management, testing, intake and interview procedures.
 - Structured Clinical Interview DSM-IV-TR Axis I assessment
 - Served as liaison between lab and hospital staff, study physicians, pharmacy, IRB, FDA, & NIDA.

- Attended weekly neuroscience seminars offered in conjunction with UCLA, NPI addiction clinic for post-doc fellows.

9/02 – 6/04

Group Therapist/Rehab Group Facilitator, Star View Children and Family Services, Adolescent Center Psychiatric Hospital Facility. Duties included:

- Direct and indirect rehabilitation treatment for severely emotionally disturbed adolescents
- Rehabilitation assessments upon admission
- Developed and led/co-led therapeutic and rehab groups daily

10/01 – 9/02

Mental Health Worker, Central Juvenile Hall, Private Provider Mental Health Program. El Centro de Amistad and Starview Community Services. Duties included:

- Case management and mental health services for incarcerated juvenile offenders
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RESEARCH EXPERIENCE

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- Literature reviews and Instrument development

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Research Assistant, Nina T. Rodd, Ph.D., QME, DABPS, Clinical and Forensic Psychology. Duties Include:

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2/02 – 7/02

Research Associate, Department of Psychiatry and Biobehavioral Sciences, UCLA School of Medicine. Duties included:

- Neuropsychological testing
- Malingering research and assessment
- Administration and scoring of neuropsychological and malingering protocols
- Data management, database design and data entry for computerized statistical analyses

4/01 – 1/02

Student Research Assistant, California State University, Los Angeles, Developmental Psychopathology and Memory Lab, Duties included:

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- Psychophysiological testing procedures
- Development and construction of memory and suggestibility protocols and materials

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Turner, J., Ropacki, M., & Hinkin, C. (2003). Comparison of modality of stimuli presentation in three malingering measures. Abstract published in the proceedings of the Thirty-First Annual Meeting of the International Neuropsychological Society, February 5-8, 2003, in Honolulu, Hawaii.

Turner, J., Ropacki, M., & Hinkin, C. (2003). Comparison of modality of stimuli presentation in three malingering measures. Poster presented at the Thirty-First Annual Meeting of the International Neuropsychological Society, February 5-8, 2003, in Honolulu, Hawaii.

Turner, J. (2003). Symptom validity testing and malingering assessment: A comparison of above and below chance cutoffs on three malingering measures. Unpublished thesis.

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Abstract

The purpose of this dissertation was to provide a systematic and comprehensive review of the psychoanalytic literature as it pertains to prenatal psychic experience. The emotional life of the fetus has become an increasingly important topic in psychoanalysis, particularly within object relations theory and theoretical and clinical exploration of primitive mental states. Contemporary psychoanalysts, following the ideas of Freud, Bion, Ploye, Mancina, Grotstein, and Paul have begun to gather research from the fields of infant mental health, developmental psychology, and medicine, among others, to show that not only does the newborn infant have an inherent capacity to communicate with the mothering one but that these capacities may have taken form during the prenatal stage of development. While psychoanalytic theory in the area of prenatal psychic experience has been sparse, to date there have been no attempts to identify and synthesize the literature that exists in disparate areas of psychoanalysis. This dissertation aimed to systematically review the psychoanalytic literature in this area of study and to integrate existing theories and ideas through the use of Grounded Theory methods to provide a context for further inquiry and recommendations for possible clinical application.

Chapter One: Introduction

The concept of infantile mental life and subjectivity, beginning in the very first moments of postnatal life, and even in utero, is new to our understanding of infant emotional development (Van Buren, 1993). With the advent of psychoanalysis at the turn of the twentieth century, Sigmund Freud illuminated the unconscious and increased our understanding of affective states and psychic development; particularly in respect to Oedipal stage dynamics (Hall, 1954; Roback, 1961). Following Freud, Melanie Klein (1923) and later, Wilfred Bion (1962), among others, began clinical and theoretical explorations into the earliest of mental states and formal inquiries into the capacities of the infant took root.

Contemporary psychoanalysts have attempted to amass evidence from both empirical work of infant mental health research as well as evidence from medically informed studies that suggest that not only do infants have the capacity to communicate with caregivers at birth (Beebe & Lachmann, 2005; Stern, 1985; Trevarthen & Malloch, 2000; Tronick, Als, Adamson, Wise & Brazelton, 1978;) but that many of the fetus' sensory systems, including auditory, visual, and tactile capacities, are online and fully functioning before birth (Field, 2007; Osterweil, 2002). A growing number of psychoanalytic theorists have presented new ideas regarding the effects of prenatal psychic experience on post-natal infant communication and relations.

While psychoanalysis is increasingly focusing attention on early development and mental states, to date, there are no scholarly, systematic reviews of the psychoanalytic literature pertaining specifically to prenatal psychic experience. The objective of this dissertation was to provide an exploratory review of psychoanalytic theory regarding the

intrauterine experience of the fetus in an attempt to identify relevant themes and to provide a context for further inquiry.

Background

In December 2000, neuroscientist Eric Kandel was awarded the Nobel Prize in Physiology or Medicine for his research regarding the molecular properties and synaptic mechanisms involved in learning and memory (Kandel, 2000). Kandel's contribution was significant and groundbreaking as he was able to demonstrate that the *Aplysia*, a marine sea slug with a simple neuronal structure and central nervous system, has the capacity to learn and to have a memory (Kandel, 2000; 2004). For psychoanalytic researchers interested in the emotional life of the fetus, Kandel's finding that even an organism with an exceedingly simple neurological structure can encode and learn from experience gives support to the proposition that a fetus, which has a far more developed neurological system, is affected by experience and learns within the womb. The question then becomes: What is the nature of this learning and its impact on psychic life and development?

Early Considerations of Primitive Mental Life

Considerations of infancy and the capacities of the infant have taken many forms since the days of Plato (400 B.C.), and most likely before, up through to the present day. Plato believed that human beings were born with inherent ideas or pre-conceptions about human experience which influence and inform an individual's knowledge of the world (Crassini, 1987). Sixteenth century philosopher John Locke proffered his theory of the human infant as *tabula rasa*, in which the newborn mind is a blank slate requiring sensory data alone to gain experience and knowledge about the world (Dennis, 1972;

Roback, 1961). Coe and Lubach (2008) argued that Locke's concept of *tabula rasa* was influential in the perpetuation of a conceptualization of the infant as a clean slate throughout subsequent centuries.

Historically, the fetus has been considered to be in a passive state, unencumbered by outside stimuli, and protected in perpetual bliss inside the mother's womb (Osterweil, 2002). Medical research utilizing advanced methodologies of real-time ultrasound have established new ways to visualize and study the fetus in its natural environment. Piontelli (1987) stated that research employing ultrasound techniques have shown that "long before birth a fetus can hear, respond to pressure and touch, swallow and taste, react to pain, choose its preferential position and also have some kind of primitive dream experience and show the beginnings of some form of learning" (p. 454).

Psychoanalysts have become increasingly interested in both the capacities of the infant at birth as well as the influence of intrauterine life on these capacities. In the realm of primitive object relations, theorists have begun to put forth ideas regarding the beginnings of emotional life that have origins in the prenatal. Beginning with Freud, there has been a lineage of prominent psychoanalytic theorists that have focused on the unconscious mental life of the fetus and influenced our understanding of fetal capacity and experience. While some have utilized existent scientific literature to support their arguments, others have conducted their own empirical or observational research. Many have formulated their own *imaginative conjectures*, to use a term of Wilfred Bion's, in order to think about the experience of the fetus and the possible postnatal manifestations. To provide a clearer context for this dissertation, a short review of the most influential theorists in psychoanalysis in this area of inquiry will be provided.

Early Psychoanalytic Contributions to the Study of Fetal Mental Life

Sigmund Freud. In *Interpretation of Dreams*, Freud (1900) discussed the existence of *birth dreams*, dreams related to the intrauterine experience of the amniotic bath, or dreams regarding the mother's genitals. He stated:

A large number of dreams, often accompanied by anxiety and having as their content such subjects as passing through narrow spaces or being in water, are based upon phantasies of intra-uterine life, of existence in the womb and of the act of birth. (p. 399)

His focus on dream content related to the amniotic bath continued throughout his work (Freud, 1916; 1933; 1939) as he often referred to dreams regarding *water, being pulled out of water* or being *rescued* from water as reference to the womb or to intrauterine existence. Ploye (1973) suggested that Freud's focus in this area showed that he believed that the sensation of having been bathed in the amniotic fluid as a fetus is symbologenic and recoverable as an unconscious memory.

Freud (1917) also alluded to the symbolic experience of sleep as an unconscious return to the safety of the maternal womb. He stated:

Somatically, sleep is a reactivation of intrauterine existence, fulfilling as it does the conditions of repose, warmth and exclusion of stimulus; indeed, in sleep many people resume the foetal posture. The psychical state of a sleeping person is characterized by an almost complete withdrawal from the surrounding world and a cessation of all interest in it. (p. 222)

Finally, Freud (1926) offered his most famous insight into the continuity of pre and postnatal life when he stated: "There is much more continuity between intra-uterine life

and earliest infancy than the impressive caesura of the act of birth would have us believe” (p. 138).

Sandor Ferenczi. After Freud, Ferenczi (1913; 1933) was the first psychoanalyst to discuss the possibilities of the influence of prenatal life on postnatal existence (Ploye, 2006; Share 1994). He stated that the individual is occupied “from the moment of birth onward by a continuous regressive trend towards reestablishment of the intrauterine situation” (Ferenczi, 1933, p. 380 as cited in Share, 1994). He also discussed the origins of omnipotence. He stated:

If, therefore, the human being possesses a mental life when in the womb, although only an unconscious one – and it would be foolish to believe that the mind begins to function at the moment of birth – he must get from his existence the impression that he is in fact omnipotent. For what is omnipotence? The feeling that one has all that one wants, and that one has nothing left to wish for. The foetus, however, could maintain this of itself, for it always has what is necessary for the satisfaction of its instincts, and so has nothing to wish for; it is without wants...the traces of intra-uterine psychical processes do not remain without influence on the shaping of the psychical material produced after birth. The behavior of the child immediately after birth speaks for this continuity of the mental processes. (Ferenczi, 1952, p. 219-220, as cited in Share, 1994)

Wilfred Bion. Ploye (2006), a pioneer of exploration into prenatal psychic experience, provided a rich review of psychoanalytic contributions to the study of fetal mental life and he offered his own understanding of the significant role that Bion played in the evolution of this field. He stated:

It could therefore be said that towards the end of his life, Bion was beginning to speculate in one way or another about the possible existence of prenatal, object-seeking, and parasitical forms of transference in which aggressivity would play a considerable part. By the same token, his repeated references to the “containing” analyst and the “contained” patient (1962; 1963) are almost an invitation to consider the interaction that may have taken place, during the prenatal life of a given patient, between the “containing” prenatal mother and the patient himself as the “contained” foetus or embryo. (p. 15)

Paul (1997a) noted that it was Bion who helped to revive the study of prenatal life in psychoanalysis, but he also recalled the intense resistance to Bion’s ideas during this time. Paul stated:

When Bion presented work on this theme as imaginative conjecture and a kind of “science fiction,” there was considerable violence evoked in audiences who tended to feel assaulted and responded in kind. I was amazed and horrified at the rage and disrespect which greeted these ideas, and yet even now there can be just as powerful a reaction. I have been less uncertain as to the source of this violence when, after having worked so long with the experience, the fundamental nature of the work has become even more evident. (p. 23)

From 1965 through to 1980, Bion’s conjectures into the prenatal began to surface in his writings and his lectures. Ploye (2006) argued that Bion’s (1965) discussion of parasitical forms of transference, where the patient phantasies himself as living inside the analyst’s body and in response to any link that could lead to growth there is a violent move to destroy it, was a precursor to Bion’s ideas regarding the origins of aggressivity

occurring in fetal life. Paul (1997b) noted that Bion (1975; 1976) intuited a fetal clock that would be triggered by fetal movements and the experience of the maternal physiological rhythms. Paul stated that this idea was influential in the inspiration of continued study initiated by both Paul (1981) himself, and Mancina (1981).

Bion (1977) also contemplated Freud's quote on the continuity of pre and postnatal life when he stated:

This may seem to be an academic and unimportant matter – unless we think that there may be some truth in the statement in the quotation, (*'There is much more continuity between intra-uterine life and earliest infancy than the impressive caesura of the act of birth allows us to believe'*) that there is some connection between post-natal thought and emotional life, and pre-natal life. To exaggerate the question for the sake of simplicity: Are we to consider that the fetus thinks, or feels, or sees, or hears? If so, how primitive can these thoughts, or feelings, or ideas be? (p. 44)

Taback de Bianchedi et al., (2002) and Osterweil (2002) both noted Bion's conjecture that hallucinations and delusions are the residue of memories of intrauterine experience and Chuster (2010) utilized Bion's (1979) idea of *thalamic fear* or an inaccessible aspect of the mind to conduct his explorations into the origins of the unconscious. Bion stated:

I don't suppose there will ever be a chance of knowing, so to speak, what a fetus thinks, but – to go on with my scientific fiction – I suggest that there is no reason why it shouldn't feel. I think it would be quite useful to consider that some stages of fear, of intense fear, are more easily visualized or imagined by us if we think of

them as thalamic fear, or as some sort of glandular manifestation such as something to do with the adrenals, or what later turn out to be the genital structures. You can look at this as you like, say as memory traces, but these same memory traces can also be considered as a shadow which the future casts before. (Bion, 1979, p 236-237)

Share (1994) noted Bion's (1979) advocacy for considerations of communication between mother and fetus. Bion argued: "The fact that there is no demonstrable communication between mother and fetus as clear as that between mother and baby is not an adequate reason for asserting that there isn't one" (Bion, 1979, p. 137). Share (1994) also noted Bion's speculation regarding the fetal experience of catastrophic emotions throughout gestation and maneuvers employed to deal with these states. Bion (1979) argued that the fetus:

...could try to rid itself both of the senses when they became sensitive to changes of pressure in the watery medium, and of the feelings, "emotions" of sub-thalamic intensity; it might be prey to experiences unmodified in the way we expect them to be by the "higher" centres. Then comes the "trauma of birth." (p. 126)

Finally, Paul (1997b) discussed how Bion's (1980) use of *imaginative conjecture* and *science fiction* paved the way for probing the mental world of the fetus. Bion's loose sketches of the primitive organization of the mind during embryonic and fetal life seemed to be inspired by Freud, but were most influential on many of the thinkers discussed in this dissertation.

Phillippe Ploye. Ploye (1973) asked the question: Does prenatal mental life exist?

While Ploye did not attempt to answer this question, he did offer parameters for

psychoanalytic reconstructions of fetal memories in the clinical situation and he suggested that at the very least, the postnatal mind might have access to memories of threats of existence during gestation such as miscarriage or toxemia. Later, Ploye (2006) outlined his life's work regarding prenatal psychic life in his book, *The Prenatal Theme in Psychotherapy* in which he provided an exhaustive review of psychoanalytic literature in this area, clinical material related to reconstructions of prenatal imprints on the mind, and his theories regarding the placental symbolism in dreams and the placental role in ego development.

Mauro Manica. Mancia (1981) offered a hypothesis of the proto-mental nucleus in fetal life. He argued that through active sleep (REM sleep in adults), fetal dreaming aids in prenatal processing and integration of inborn biological sensory stimuli and psychological stimuli passed down from the mother through multiple channels of transmission. Mancia suggested that the integration of these stimuli leads to the formation of proto-representations or pre-conceptions of the external world. He also suggested that this process is a precursor to the postnatal container/contained relationship.

James Grotstein. Ploye (2006) argued that Grotstein (1978) offered one of the most explicit descriptions regarding postnatal manifestations of prenatal life. Grotstein discussed the *diabolical parasitism* that characterizes the transference in certain patients and how these patients often "require interpretations which acknowledge their unbornness and their difficulty and/or reluctance in finding their way to a metaphoric 'birth canal'" (p. 146). Ploye (2006) also discussed Grotstein's (1983) concept of the *background object of primary identification* which is most closely associated with the *womb-mother*. He argued that Grotstein's (1981b) "dual-track" principle that involves

“the symbiotic ‘Siamese Twin’ model in which there can be two states of mind simultaneously on two different levels: one of separateness and one of fusion” (p. 214), reminds us that it is sometimes best to turn to intrauterine life to understand postnatal mental life and behavior. Grotstein’s contributions to the study of prenatal psychic life are broad as his theories provide viable models to utilize when considering the emotional development of the fetus. His recent theories regarding fetal mental processing and inchoate alpha function are among these models (Grotstein, 2007a; 2009).

Michael Paul. Taking considerable inspiration from Bion, Paul (1981) aimed to map out the process of psychological birth and to provide the psychoanalytic clinician with a technical model that could be used to locate a patient’s mental state in session. He introduced his concept of the *placental object* and later his concepts of the *penitential mind-set*, which is a fetal mind-set, and the phenomenology of pressure in mental life and in psychoanalytic sessions (Paul, 1997a; 1997b; 1997c). The premise of much of Paul’s work is the idea that vestiges of the fetal mind can have various forms of expressivity in the postnatal.

Lynda Share. Ploye (2006) also discussed Share’s (1994) contribution to the psychoanalytic study of the prenatal. In her book, Share discussed her experience with regressed patients that seemed to present both symbolic and dream material that was related to their intrauterine existence. Share found that not only is it possible that postnatal reconstruction of fetal memories can occur in psychoanalytic treatment but that interpretation of these memories along prenatal lines and in the transference is useful. Ploye stated:

Share believes, like Paul and as I do myself, that much of what is often described as womb “phantasies” may in fact be nothing less than unconscious “memories” that can be uncovered in sessions by means of dreams, other symbolic material, or even patterns of behavior past or present, including the patient’s “here-and-now” experience of the sessions themselves. (p. 30)

Share also stressed that the effects of prenatal or birth trauma can have significant influence on postnatal functioning. She warned that patients often deemed as acting out in the transference, often evoking severe countertransference reactions in the analyst, can at times be in the midst of a re-experience of an early prenatal or birth trauma. Share’s presentation of clinical material of eight patients in her book provides clear examples of her theories regarding symbolic representations of prenatal life.

Allesandra Piontelli. Finally, Piontelli (1987; 1988; 1989; 1992; 1993) is considered to be the most innovative experimental psychoanalytic researcher in the area of prenatal psychic experience (Share, 1994). Her works have clearly demonstrated continuity between pre and post-natal life. Through the use of ultrasound techniques she devised observational studies of fetuses in the womb and was subsequently able to study and document evidence related to individuality, psychological birth, and the impact of the maternal mind during pregnancy. She is considered a pioneer in the area of prenatal psychoanalytic investigation and a culmination of her work was presented in her book *From Fetus to Child*, in which she documents her pre and post-natal observations of eleven fetuses; sometimes following them until age four (Piontelli, 1993). Probably Piontelli’s most important contribution is related to the evidence she has presented that

strongly supports the existence of a continuity of character between pre and post-natal life. Piontelli (1987) stated:

My findings suggest a remarkable continuity in aspects of pre-natal and post-natal life. Each fetus had characteristic ways of behaving which were to some extent and in some form or other continued in post-natal life. Such continuity occurred in spite of the vast changes of birth and the nature of the containing environment. I do not want to assert, however, that “nature” is more important than “nurture.” What I think my findings do suggest is that interplay between “nature” and “nurture” begins much earlier than is usually thought, and that certain pre-natal experiences may have a profound emotional effect on the child, especially if these pre-natal events are reinforced by post-natal experiences. (p.1)

Importance

The advent of infant mental health in the second half of the twentieth century led many researchers and clinicians alike to contemplate the utility of clinical intervention with infants. Most have concluded that the infant’s capacity for communication is limited and clinical interventions that focus on the mother or primary caregiver as the privileged port of entry reflect this belief (Fraiberg, Adelson, & Shapiro, 1975; Norman, 2001). Psychoanalysis has produced a limited though growing number of theorists that are interested and believe in the infant’s inherent capacity to communicate with a caregiver. Johan Norman (2001) was among the first to implement psychoanalytic techniques with infants that were based on the tenets of Bion’s container/contained dynamic and a true faith in the infant’s ability to not only discover the analytic function

of containment in analytic sessions but also to understand pre-lexical sensory language meant to offer soothing and digestion (Grotstein, 2007a; Norman, 2001).

Psychoanalytic theory based on prenatal psychic experience can inform what we know about post-natal life and vice versa. In order to continue to learn about post-natal life, we must continue to strive to understand the psychological experience of the fetus. DeMause (1982) argued that the addition of a fetal dimension to psychology will have a significant effect on psychotherapy, thereby allowing for more intuitive and fuller understandings of patient dreams, affective states, and experiences. Lecanuet, Granier-Deferre, and DeCasper (2005) suggested that our understanding of the capacities and experiences of the fetus and how these affect post-natal and even adult life is incomplete. They suggest that fundamental questions need to be asked to help this burgeoning field of fetal psychology to continue to grow and influence our thinking.

Increased understanding of the psychic experience of the fetus can also have a significant impact in the areas of education and prevention. Prenatal trauma can be decreased and there can be an increased understanding and respect for the state of pregnancy, both for the mother and the fetus. Ultimately, a fuller understanding of fetal emotional experience can lead to an increased respect for the subjectivity of the infant. This in turn can lead to a situation where in psychoanalysis, psychology, and society the infant (and fetus) or infant patient might enjoy the same respect as the adult or adult patient. In psychoanalysis, there are some who have dedicated a significant portion of their career to the study of prenatal psychic life. The areas that have been covered are sporadic but these areas have been thoughtfully considered, researched, and presented. To date, there is an absence of efforts to bring together or to unify the contributions of

psychoanalytic theory as applied to the emotional life of the fetus. This dissertation will aim to provide a systematic review and synthesis of psychoanalytic literature concerning prenatal psychic experience and to offer speculation on how these experiences might deeply influence life on the other side of the caesura of birth.

Research Objective

A systematic review of psychoanalytic theory as it relates to prenatal psychic experience was conducted with the goal of identifying themes and emergent theories in this area of study and to offer recommendations for future inquiries. Thus, this contribution is meant to help bring forward the psychoanalytic literature pertaining to the emotional life of the fetus. In the next chapter, a discussion of the research methodology for this comprehensive literature review will be presented.

Chapter Two: Plan of Action

The purpose of this dissertation is to provide a systematic comprehensive review and synthesis of the psychoanalytic literature as it pertains to prenatal psychic experience. While the term “psychic” has been widely used in psychoanalytic literature, in this study the term will be used to indicate conscious or unconscious mental or psychological experience.

Throughout the history of psychoanalysis, literature focused on the experience of the fetus has been sparse. A growing number of psychoanalytic writers, clinicians and researchers have begun to study the emotional life of the fetus, taking into consideration the development of the senses and the impact of the prenatal intrauterine environment. To date, no systematic reviews of the literature exist in this area of psychoanalytic inquiry and theory. This contribution is meant to help address the absence of a systematic comprehensive review of the literature in the area of prenatal psychic experience as well as to consider how such clinical and theoretical works might link up with what is known about the infant’s capacity to communicate at birth. Therefore, the objective of this study is to bring together a wide range of clinical, theoretical, and empirical contributions across disparate areas of psychoanalysis and to systematically review and synthesize the existing literature in the realm of prenatal psychic experience.

Procedure for the Literature Review

Mertens (2005) states that reviews of literature should serve to: 1) provide a comprehensive understanding about what is known about the identified research topic; 2) integrate this area of research for the purpose of creating generalizations; and 3) identify areas for future empirical or theoretical investigations. Because the field of prenatal

psychoanalytic theory is relatively young, and available literature is sparse, a synthesis of the literature in this field of study is warranted in order to determine possible emergent themes and to identify further areas of investigation.

A research strategy adapted from Mertens (2005) will be utilized which is presented in this chapter. Three procedures will be employed to identify relevant research to be reviewed and to ensure adequate coverage of the field of inquiry. First, the researcher will conduct a comprehensive literature search using keywords and identified search engines, outlined below. Second, an *Ancestry Approach* will be employed in order to supplement the results of the initial search. Finally, consultation with experts in the identified field of study (psychoanalytic theory of prenatal psychic experience) will be utilized in order to fill out the search, enhance the context, and identify additional resources.

Initial Search Employing Identified Search Engines

The first step is the identification of the topic and the scope of inquiry. The topic of research was determined to be prenatal psychic experience. The literature search will include articles and books in the field of psychoanalysis that pertain to prenatal psychic or emotional experience. Identification of key terms and subject categories will be determined and utilized through careful examination of seminal articles in psychoanalysis on target with the research topic. Initial subject categories will include: 1) prenatal fetal psychic experience and 2) postnatal infant communication capacity. Initial keywords will include: prenatal, fetal, intrauterine, mother-child communication, perinatal, in utero, pregnancy, primitive communication, infant, prenatal trauma, and primitive object relations.

Obtaining secondary resources in this type of review of the literature is of primary concern. Because the field of prenatal psychic experience is in its early stages, it is possible that there are limited resources available. Locating secondary resources will be crucial in this study as it will provide a base from which to begin the literature review. Current and/or seminal reviews in the area of prenatal psychic experience, if any, will be identified. To supplement this initial search, current and/or seminal literature reviews in the psychoanalytic areas of object relations and primitive mental states will be identified and reviewed as well. A preliminary search using Psychoanalytic Electronic Publishing and EBSCO Host Research Databases - Academic Search Elite, Child Development & Adolescent Studies, PsychINFO, and PsychARTICLES will be conducted. Relevant journals determined to be most helpful in the search for literature in this area will be identified. Examples taken from preliminary searches have indicated an initial list of journals listed below. The final list of journals will include but not be limited to:

- International Journal of Psychoanalysis
- Psychological Bulletin
- Journal of Child Psychotherapy
- Infant Behavior Development
- The International Review of Psycho-Analysis
- Psychoanalytic Inquiry
- Infant and Child Development
- The International Journal of Infant Observation and Its Applications
- Infant Mental Health Journal

The inclusion criteria in this study are: 1) psychoanalytic articles and books identified by one of the keywords: prenatal, fetal, intrauterine, mother-child communication, perinatal, in utero, pregnancy, primitive communication, infant, prenatal trauma, and primitive object relations; 2) psychoanalytic articles and books identified by the keywords or related to object relations and primitive mental states; and (3)

psychoanalytic articles and books published between the years of 1980 and July 2009.

An exception to these criteria will be inclusion of resources either located through

Ancestry Approach methods or suggested via consultation. The exclusion criteria will

be: a) literature published in languages other than English, unless translation is available;

b) non-psychoanalytic literature, e.g., articles and books focused primarily on medicine

or issues related to the medical field; c) literature involving non-human participants; and

d) literature not incorporating psychoanalytic theory.

Ancestry Approach

Primary resources will be identified using the Ancestry Approach outlined by

Cooper (1989). In this approach, the main context of the literature review is

supplemented through an examination of the reference sections of the seminal primary

and secondary sources.

Consultation

Consultation with experts in the field of psychoanalysis, primarily with an interest

in object relations and primitive mental states, will also be utilized in order to fill out the

main context of the literature review. Possible consultants will be determined through an

initial interview with James Grotstein, M.D., a preeminent writer with over 200

publications in the areas of object relations and primitive mental states and a recognized

leader in the field of psychoanalysis. In addition to Dr. Grotstein's suggestions, criteria

for consultation will include: a) five or more publications in the area of focus

(psychoanalytic theory of prenatal psychic experience) and/or b) past presentations in the

area of focus at conferences, scientific meetings, or lectures.

Method to Analyze the Literature

After the literature search is conducted, articles will be analyzed and summarized with a particular approach. First, the researcher will determine the themes addressed in the article. Second, the researcher will determine the paradigm of psychoanalysis represented in the source. Third, the researcher will summarize the arguments and conclusions made in the article. Fourth, a review of the references provided with the article will be conducted to determine the utility and relevance for the current study. An example case of this method is included in Appendix A

Method to Reach and Present Conclusions

Organization of the synthesis of the literature will be guided by Grounded Theory methods outlined by Glaser and Strauss (1967). Grounded Theory has been widely used in education, sociological, and psychological studies since its inception in the 1960's (Strauss & Corbin, 1990). This approach provides a systematic method for synthesis and analysis of literature with the sole purpose of discovering and/or generating theory from the data. In essence, a grounded theory is inductively derived from the phenomenon being studied. The systematic nature of this method also allows for a relative range of replication of the results of the Grounded Theory research (Glaser & Strauss, 1977; Strauss & Corbin, 1990).

In this approach, each document is treated as a data point to be analyzed, coded, and summarized through a systematic search for emergent themes and patterns. Specifically, once the data are collected through the literature search, each data point will be coded in three stages which are also outlined in Strauss and Corbin (1990). The first stage is referred to as *open coding* in which the researcher identifies themes and

arguments regarding the phenomenon discussed in the resource. These variables are then labeled and categorized. In the second stage known as *axial coding* the data are related in new ways in an attempt to discover causal relationships between identified categories. During this stage, the researcher aims to explain and understand relationships between categories and emerging sub-categories within the phenomenon of study. Finally, in the *selective coding* stage, identification of core categories from the ongoing synthesis of the data points occurs and these core categories, which are central phenomenon that all other categories are based, are related to other categories identified in this process. Categories are integrated and refined which leads to a Grounded Theory regarding the phenomenon of study.

Primary, secondary, and personal consultation resources will be combined and integrated through the processes outlined above in order to develop general conclusions about the literature review. Theoretical conclusions, drawn from the completed synthesis of the literature, will be presented in this dissertation. The final product will be presented in the following fashion: a) core themes will be specified and defined; b) a narrative of the emergent theory within each theme or category will be presented; and c) general conclusions regarding the emergent Grounded Theories will be presented.

Recommendations for future areas of research as well as possible clinical implications and recommendations will also be presented.

Limitations of the Study

Glaser (1978) argued that an important factor within Grounded Theory methodology is the degree of theoretical sensitivity of the researcher. Glaser described this as the personal qualities of the researcher that influence the ability to understand the meaning and subtlety of the data. It also refers to the conceptual insight of the researcher regarding the phenomenon being studied. Glaser (1978) suggested that one might gain theoretical sensitivity by working in the area of study in order to obtain experience and expertise and thereby increase the ability to recognize important data and formulate and conceptualize emergent theories. While the present researcher has obtained experience in the realms of infant mental health, both in the treatment and neurodevelopmental assessment of infants as well as in the psychoanalytic understanding of theory related to early infantile states of mind, the complexities involved in this relatively young field of prenatal psychic experience might include conceptual challenges throughout the synthesis of the literature. Careful consideration of this issue must be ongoing as much of the material will be derived from relatively dense and complicated theoretical ideas and descriptions of phenomena within the field of psychoanalysis.

In addition, personal biases and interests will inherently play a role in the selection of the literature as the methodology by which this study will be conducted involves a combination of objectivity and subjectivity in order to identify, code, and synthesize data points, categories, and emergent themes. While this limitation could definitely be controlled through the use of outside raters, the exploratory nature of this study, as it is a study based on a relatively new area of psychoanalytic theory, allows for the use of a single researcher in this initial survey of the literature.

Chapter Three: Findings

The findings of the analysis of the psychoanalytic literature pertaining to prenatal psychic experience will be presented in this chapter. An overview of the resources included in the analysis is provided in Appendix B. Throughout the process of coding for themes and core categories, a constant comparison approach was utilized to continually analyze the possible relationships amongst the data. Final analysis revealed seven core categories that were synthesized into grounded theory. These categories include: 1) an overview of psychoanalytic theory related to the fertilization of the human concept; 2) a synthesis of both empirical findings and theoretical contributions related to the psychological impact of pregnancy on the mother's mind and her possible transmissions to the fetus; 3) a review of psychoanalytic theory related to the fetus' experience of sound throughout gestation and the possible applications to our understanding of early object relations; 4) a discussion regarding prenatal trauma and the possible resulting protective reactions that develop in utero; 5) an overview of psychoanalytic theories related to primitive prenatal mental processing, postnatal infant communication, and the early formations of the unconscious mind; 6) a discussion of early experiences of pressure and resulting prenatal transferences that could manifest in postnatal life; and 7) a review of possible applications of psychoanalytic theory related to prenatal psychic experience to the psychoanalytic treatment situation. A discussion of the findings follows the presentation of this material in Chapter IV.

Conception

The analysis of the psychoanalytic literature produced a core category concerning conception of the human fertilized egg. The following three concepts emerged from the analysis: Bion's (1976) suggestion regarding mental vestiges of the germplasm; Horner's (1992) argument regarding the *contact seeking nature* of the embryo; Szejer's (2005) contention that the embryo is always separate and through its own intention perpetuates its first relationship when it embeds itself in the uterine wall; and Wilhelm's (2010) theories regarding cellular memory and the trauma of conception.

Mental Vestiges of the Germplasm

The possibility of the existence of a rudimentary psychic life during the conception process seems improbable but there are some who have contemplated this very situation. For instance, Wilfred Bion (1976), in his paper *On a Quotation from Freud*, stated:

It seems to be that from a very early stage the relations between the germplasm and its environment operates. I don't see why it should not leave some kind of trace, even after 'the impressive caesura of birth.' After all, if anatomists can say that they detect a vestigial tail, if surgeons likewise say they can detect tumours which derive from the branchial cleft, then why should there not be what we would call mental vestiges, or archaic elements, which are operative in a way that is alarming and disturbing because it breaks through the beautiful, calm surface we ordinarily think of as rational, sane behavior? (p. 236)

Bion's suggestion would effectively date the origins of mental life back to the germplasm, the sperm and the egg, from which inheritance and the genes originate

(Weissman, 1893). Wilhelm (2010) called attention to the journey of the two germinative cells, the spermatozoid and the ovum, that begins at their respective origins and continues through to and during the *heterosexual encounter* up to the point of conception. Thomson (2007) explained that at this point the largest cell in our species, the egg, unites with the smallest cell, the sperm, to form a single new cell, the zygote. Within this zygote cell, there exists a blueprint for a one of a kind individual, never to be duplicated. This zygote cell progresses through to gamete, blastocyst, embryo, and then fetus (Dye, 2002).

The Inherent Intention of the Fertilized Egg

Horner (1992) discussed a possible inherent characteristic of the *emergent blastula* in route to the opening of the uterine cavity. Horner argued that as the blastula makes its way through the fallopian tube its existence is completely separate from the motherly internal physical environment. During this time it must implant itself into the mother's uterus by way of an inherent tropism in order to continue on its developmental pathway to embryo and then to fetus. Once a life-sustaining connection is made with the mother, the placenta begins to grow. Horner argued that this first relationship with mother's body is established by way of the embryo's own intention. He stated, "The embryonic person's first relationship with the mother, reciprocally physiological as it is, is established on the basis of its own (unintending and, of course, unknowing) agency" (p. 36). Furthermore, Horner suggested that the essence of the blastula's need to establish a relationship with the inside of the mother's body for sustenance and biological, and perhaps psychical development, is also driven by an inherent characteristic. He stated, "Surely, by virtue of the placenta's origins, and before that by

virtue of the blastula's original actual separateness, the biological template for both physical and ontological symbiosis is molded of the organism's contact seeking nature" (p. 37).

Szejer (2005) also believes there to be separation between the blastula and embryo and the mother's body during the early stages of cell development. She argued strongly that there is no fusion, ever, between mother and child. Instead she elucidated that the fusion that exists is between the child and the womb. She also closely described the processes occurring following conception in which during the first days, multiplication of cell mitosis happens, and then on the fourth or fifth day, cellular differentiation occurs. This leads to the fertilized egg's migration to the uterus. Once embedded in the uterine wall, Szejer explained that a trophoblast is *manufactured by the child* as a temporary precursor to the placenta. This trophoblast serves as an intermediary between the mother and child and exists because contact with the mother has been established by the child and an exchange with the mother has taken place. She noted that the child never touches the mother. It is only through the placental mouth that breathing and feeding take place.

Both Horner (1992) and Szejer (2005) suggested an inherent intention within the ever-evolving child following conception. This intention or agency seems to be in the service of development and living. Szejer stated, "If the fetus has any desire, it is to live" (p. 162). Not only does this characteristic seem to be useful for the preservation of life, but there is also a relational element that is suggested. Horner described the embryo as possessing a *contact seeking nature* and Szejer quoted pediatrician Marie Thirion to

support her argument regarding the intentionality of the embryo and fetus. Thirion stated:

To live after birth, in an exact resemblance to the very first days after fertilization, when her implantation in the uterus immediately determined her survival or elimination, a newborn must take root in something living, must implant herself in a human relationship. (Marie Thiron, as cited in Szejer, 2005, p. 162).

It seems according to Horner and Szejer, the very first relationship is forged when the embryo makes contact with the uterus. Through this relationship, the organism's life is extended into life as a fetus living within its own self-perpetuated womb, the placenta.

Cellular Memory and the Trauma of Conception

Wilheim (2010) studied the psychoanalytic manifestations of the experience of conception from a different perspective. Since 1983, she has been interested in early traumatic imprints on the mind. Through her clinical experience and her supervisions and lectures with Bion in the early 1970's, Wilheim began to formulate her own imaginative conjectures about the origins of psychic life and manifestations of this in clinical situations. She explained that as she experienced intense negative therapeutic reactions and attacks on linking with her patients, she felt that the available theories utilized to understand these phenomena were only descriptive and therefore limited. She stated:

I wanted to understand what produced such destructive mental movements. I wanted to understand the origin of envy, the psychotic part of the mind, the attacks on linking, the perverse part of the personality. I wondered why a mind

would avoid mating with another mind. What sort of pain was feared and avoided? Why would a mind suddenly retreat and hide beneath a sort of protective shield? (p. 100)

Wilheim (2010) took as a major influence Bion's common statement that *the biological unit is a couple. It takes two human beings to make one.* She explained that Bion believed that to become one with one's own self one must be involved with a "bringing together not only body and mind, the prenatal and postnatal personalities, but proceed also to the marriage of the spermatozoid and ovum which gave origin to that particular individual" (Bion, 1978, as cited in Wilheim, 2010, p. 99). Her conjectures led her to consider not only the experience of conception but also the experience of pre-conception and the post-conceptual fights of the fertilized egg to avoid termination by the mother's immune system. She explained that the basic elements of her theory aimed to consider the earliest experience of the two germinative cells that would include:

a) what each of them underwent since its respective origin up to the moment of its mating; b) the "relationship" established between the two cells before, during and after the heterosexual encounter; and c) the vicissitudes and torments underwent by what now stand for the integrated couple – the concept – submitted to a violent struggle for life just after "birth," due to destructive attacks from its first environment, giving rise to "feelings" of panic, and threat of being destroyed, aborted. (p. 99)

She noted the physiological reactions of the maternal biological system that aim to destroy or eliminate the new life because it initially recognizes it as a foreign body. She reported that 75% of fertilized eggs are destroyed in the fallopian tube. Taking this

into consideration, Wilhelm conjectured that the moment of mating, fusion, and fulfillment could be colored with both joy for the creation of life and torture and destruction especially when it comes to the spermatozoid that experiences intense metamorphosis because of the loss of its tail and the swelling of its head to four times larger in order to deliver the genetic code contained within. She wondered if this experience could be a basic human trauma for all, the trauma of conception. If this is true, she argued that this first experience would be imprinted on the cells of the fertilized egg which could be influential of functioning thereafter via cellular memory. She explained:

In the utmost depths of our minds lies a basic matrix which contains the imprints – recorded by means of cellular memory – of the whole process of our biological experience, from preconception to birth: starting from the formation of each of our two basic germinative cells – spermatozoid and ovum – up to the moment of birth. (p. 98)

She continued:

From this basic matrix derives the raw material of the unconscious phantasies which will get triggered whenever a specific circumstance bumps against one of these basic registers. At that very moment, what is contained in this “corpuscle” of memory in the evoked basic matrix will surface and settle in the mental space with all the affective – emotional coloring which belongs to that first original experience. This will be so for the basic emotions of anxiety, anguish, envy, jealousy and the feelings of rejection, exclusion, abandonment, helplessness,

distress and deprivation... We can therefore consider that all these emotions are phantasies – emotional memories, evocations, and transferences. (p. 98)

In essence, according to Wilhelm, phantasies are memories. These memories are psychic representations of the early imprints that she argued could be recorded by way of cellular memory. Because the initial coding of the experience occurred through early sense impressions that registered at the cell level, Wilhelm argued that these encodings took place when the mind had no conditions to know about it, only to feel a sense of what is happening. These early sense impressions were likened to *beta elements* (Bion, 1962) in her theory in which a basic coloring of the experience is imprinted and then recalled after birth as a symptom that could exist at a level of mind that is unknowable or unthinkable.

Wilhelm (2010) expanded her theory to possible clinical applications in which she aimed to understand a patient's resistance in treatment as a recapitulation of this first experience of trauma. She suggested that in light of these ideas, it could be possible that an especially traumatic experience of conception would be imprinted and by way of cellular memory any new situation or experience that is perceived by a patient as related to conception, birth, growth, or development could be met with catastrophic feelings. This in turn, could lead the unconscious mind to employ maneuvers to prevent the establishment of mental links as well as a re-experiencing of this initial trauma. According to Wilhelm, where any form of mating, especially heterosexual mating, but also mating of minds or within the mind is possible, there could be an intense avoidance and at times attempts to destroy the situation. Application of this theory in psychoanalysis in which severe impediments or resistances occur would lead to the analyst's consideration of a once biological experience of trauma being manifested in an

unthinkable mental experience in the transference. She suggested that because these memories are cellular in origin, the patient is unaware of these unconscious predicaments and so they are acted out in the transference, seeming to forever require destruction of a new conception. She argued that her theory could be used as “an important tool for grasping the meaning of communications about very early life-threatening experiences which happened somewhere on the way from preconception to birth” (p. 102).

In his discussion of *prophetic dreams* in psychoanalytic practice in which the material presented by certain patients sometimes uncannily predicts the future treatment or life experiences, Ploye (1973) stated:

If psychosomatically minded colleagues conducted some research on such dreams, and came to the conclusion that in certain cases it is possible for a cellular process to reach mental expression in a symbolic form long before anything conscious appears, such a finding would presumably lend support to the idea that the lump of cells that constituted our sole existence shortly after conception might also be able to communicate something of its early life, even many years later? (p. 245)

Ploye (2006) characterized Wilhelm’s arguments as a theory of *conception shock* in which the mating of the father’s sperm and the mother’s ovum could have been too conflictual possibly leading to certain types of vulnerability in the child in later development. He stressed that Wilhelm’s continued research will be significant in psychoanalysis in that it could provide more information regarding how the mind works at this level, or perhaps how it does not.

Additional psychoanalytic researchers have alluded to the possibility of the existence of mental life during these early days of development. For instance, Grotstein (2007a) discussed Bion's propositions about sensory experiences in embryonic and fetal life. He stated, "In summary, Bion seems to believe that since the rudiments of sensation develop and become registered in the embryo and in its successor, the fetus, they can be considered to possess mental capacity, albeit rudimentary" (Grotstein, 2007b, p. 258). Sadger (1941, as cited in Share, 1994) proposed "there is certainly a memory, although an unconscious one, of embryonic days that persists throughout life and may continuously determine one's actions." He suggested that not only could an embryo distinguish between love and hate but that the embryo could already feel if the mother wants it and loves it or not.

Summary

The grounded theory that emerged in this section (an overview of sources analyzed are presented in Appendix C) brought together psychoanalytic writers interested in conception that seemed to suggest that not only does the fertilized egg, later to become the embryo and then the fetus, have some kind of inherent intentionality that functions to perpetuate a first relationship that will allow further development but perhaps the experience of this process prior to, during, and following conception could be imprinted on the mind at the cell level and influence functioning later in life.

Particularly, Szejer (2005) and Horner (1992) suggested that there exists an inherent agency within the "child" following conception in which the organism has an intention to travel up the fallopian tube to the opening of the uterus. The subsequent embedding in the uterine wall of the mother by way of a production of first a tropism and

then a placenta perpetuates continued development and a biological relationship between mother and child. This perhaps suggests not only a biological determinism emanating from the somatic cells produced by the germ plasm (Weissman, 1893), but also a relational element within the maneuvers the embryo employs in order to preserve life. The embryo must embed itself in a human relationship in order to maintain the current developmental trajectory. The journey, according to Wilhelm's (2010) argument, from the origins of the germinative cells, spermatozoid and ovum, through mating to conception, and during post-conception, could register as traumatic. This trauma of conception could lead to cellular memories that are unknown or unthinkable to the embryo, fetus, and post-natal human being but can be acted out in life and in psychoanalytic treatments in the transference. If this is true, according to Wilhelm, then the transference manifested in the *difficult to reach patient* will possibly be related to this original trauma and be characterized as an inability to tolerate a concept, or a mating between two minds or within the mind. Instead, any and all new concepts could be destructively aborted and the avoidance of a repetition of the trauma of conception will prevail.

Mother's Mind

Analysis of the psychoanalytic literature produced a second core category concerning the pregnant mother's psychological effects on the fetus' development and experience in the womb. Hence, this section has been entitled, *Mother's Mind*. The grounded theory that was generated for this section is comprised of: research related to the mother's psychological experience of pregnancy; channels of transmission between the mother and the fetus; the effects of maternal stress; and maternal representations of the fetus.

The Mother's Psychological Experience of Pregnancy

The psychology of pregnancy has not been fully explored from biopsychological and psychoanalytic perspectives (Bergner, Monk, & Werner, 2008). The belief that the fetus exists in a blissful state, unencumbered by any outside stimuli has led to insufficient research on the psychological effects of pregnancy of both the mother and her baby. But the reality is that pregnancy is a difficult process. The pregnant mother experiences many significant changes in her emotional state as well as her bodily state. As the child moves through the gestation process, the mother must adjust to the shifting needs of her own psyche and body and that of her child's. Gordon (1978) described this issue clearly:

We still tend to think that pregnancy should be a state of bliss, and of childbirth, as a time of fulfillment and harmony, free from stresses and inner conflicts. For incalculable number of women reality falls short of such expectations. They discover that pregnancy and childbirth are times of crises, of unexplained fears and forebodings, of self-doubt, disappointment and depression. The expected

blissful moment when the mother holds her baby for the first time is often overshadowed by anxiety and feelings of emptiness, inadequacy, even hostility. (p. 201)

Holmes (2000) provided a patient's description of her experience during pregnancy that captured the emotional shifts that occur throughout gestation. The patient stated:

I loved the middle three months. For the first time in my life, I wasn't alone in my own skin. I felt "two in one." The pain of existential loneliness was gone, and I had no anxiety. I just felt like, "What could go wrong? We're together." The baby's movements were coordinated with mine and yet distinct. It was great. But then when the baby started getting so big, and its kicking really started to hurt, and I got indigestion and couldn't breathe, and felt a foot jammed against my ribs, I began to think, "Why don't you get the hell out of there, you little intruder? You're wearing out your welcome." At the end, I was terribly anxious and conflicted. I wanted it to be over and at the same time, I was terrified of the labor and delivery. No way out. (p.120)

Pines (1994) described the emotional stages of pregnancy. In the 1st stage which occurs between inception and the 4th or 5th month of gestation, the mother begins to feel the fetus' movements for the first time. This is described as *quickenings*. This situation often will revive feelings of adolescence because of growth of breasts and physiological changes. In the 2nd stage, the mother begins to realize that the fetus has a life of its own which she cannot control. In this stage, fetal movements become projective stimuli for unconscious phantasy. Carter-Jessop and Keller (1987) following their review of the prenatal maternal bonding literature reported three major findings: 1) pregnant women

tend to express common thoughts and feelings about their unborn babies such as perceptions that are related to the mother's need to be able to think of the fetus as both apart of her and separate from her; 2) most pregnant women engage in a variety of emotional bonding behaviors that include touching, talking to, and interacting with the fetus; and 3) the maternal-fetal relationship intensifies during the last trimester, which then carries over into the early post-natal period.

Paul (1997a) acknowledged the importance of studying the emotional effects of pregnancy and the subsequent effects on the human fetus. In Paul's (1997) book, *Before We Were Young*, he explored the prenatal experiences of pressure prior to and during the act of childbirth and the consequential psychological struggles that might ensue during postnatal life. Paul stated, "A natural field of study is the psychoanalysis of pregnancy. I have had the good fortune of analyzing four women before, during, and through their pregnancies, and it is clear that maternal fantasy directly plays on fetal activity" (p.24). For instance, Paul (1997a) discussed a woman in her middle thirties who felt extreme anxiety about her fetus whom she believed was damaging her. With quickening discussed by Pines (1994) above, this mother's hatred increased significantly but she was also able to notice that her baby's movements decreased or stopped during her bouts of hatred. Analysis of her primitive phantasies to drain or destroy her mother's body relieved her hatred and anxiety and her fetus was reported to have resumed normal movement.

Channels of Transmission

Mancia (1981) argued that the mother's many channels of transmission and communication, both physical and emotional, take over the pregnancy. He stated:

This whole complex of functions will dominate the mother-fetus relationship for the entire duration of the pregnancy and will thus enable the mother to transmit to the fetus, through multiple channels, elements not only of her own biological state, but also of her own mental and emotional world. (p.352)

Mancia listed the many channels of transmission of the mother that he believed to be involved with the process described above. These channels included the mother's vascular system, respiratory system, the amniotic fluid, the mother's bodily position at any given time, the constancy of temperature in the womb, noises that penetrate the uterine wall such as the mother's heartbeat and the mother's voice, the endocrine rhythms, and the circadian rhythms.

With regard to the amniotic fluid, Grotstein (1983) discussed the possibility of transmission across the placental barrier through to the amniotic bath and into the uterine environment. He argued that transmissions of a depressed mother's mental state could have an effect of a *biochemical assault* on the fetus that originates in the mother's depressive illness. Piontelli (1992) described the amniotic fluid as "dynamic, reflecting the mother's hormonal state...also the mother's diet" (p. 37). Because the fetus begins to swallow and excrete amniotic fluid during the last trimester of gestation, the constitution of the fluid perpetually changes. This represents a continual exchange of chemicals, nutrients, and emotional states between mother and fetus.

Imbasciati (2004) discussed his theories of transgenerationality and protomental systems. He noted that a number of clinical studies in psychoanalysis have shown how the characteristics of unconscious functioning and deep unconscious contents were transmitted from adults to subsequent generations. He thought of trans-generational

transmission as occurring between one unconscious to another. For instance, attachment styles are thought to not only help regulate a child's mental functioning but also serve to transmit the mother's *mode of functioning* to her child. This can be seen in Bowlby's (1979) concept of the internal working model according to Imbasciati. He explained:

Attachment styles not only regulate the child's functioning but also express (and transmit) modes of functioning of the mother's mind – so-called internal operational models – and determine the future functioning of an individual's mind...a mother's style of attachment and caring expresses an entire mode, or indeed world, of mental functioning of that particular mother – that is to say, personality characteristics that are transmitted through the care she provides and contribute to the formation of the child's psychic structures. (p. 85)

Imbasciati's argument aimed to establish the fetus as not only having a mind, or at least an unconscious mind, but also as an organism that is prepared for receiving data from its mother that will be useful for development. He stated, "Just as we know that the fetus has a 'mind,' so we can assert that it is modulated by the mother's mind" (p. 96). According to Imbasciati's theory of transgenerationality, the fetus receives information with regard to attachment and general mind-sets via an unconscious channel of transmission.

Maternal Stress

New research has shown that before birth, a pregnant woman's mood and emotional states can have a significant effect on fetal development. Field (2007) explained that maternal stress has been increasingly associated with fetal stress. McPherson (2006) noted that because the fetus and the mother are anatomically

connected the fetus shares some of the mother's physiological states. For example, according to DiPietro (2004) the fetal heartbeat is correlated to the maternal heartbeat from about 32 weeks of gestation. The affective state of the mother during pregnancy has also been linked to subtle differences in the neurobiological substrate of the fetus' emerging affect-regulations system (Bergner, et al., 2008). Field, McPherson, and Bergner, Monk and Werner offered in depth reviews of the literature as it pertains to the effects of maternal stress on the fetus. These next sections will provide a summary of the literature reviewed in these works.

Effects of maternal stress. Van den Bergh (1992) explained that changes in maternal physical and emotional states affect fetal heart rate, heart rate variability, body movements, and breathing movements. Infants born to mothers with depressive symptoms tend to have fewer facial expressions in response to models of happy and surprised faces (Lundy & Field, 1996). They also tend to have disrupted sleep patterns (Field, 1995). According to Zuckerman, Keener, Stewart, & Anders (1986), newborn fussiness and non-soothability is predicted by a mother's depressive symptoms during pregnancy. In the studies in which offspring were followed to adulthood, increased rates of serious mental illness were related to prenatal stress (Martin & Dombrowski, 2008). Depressed adults have been noted to report that they had a depressed prenatal mother which led to shorter gestation and lower birth weights (Preiti et al., 2000). Overall, Buitelaar, Huizink, Mulder, Robles de Medina, & Visser (2003) argued that while prenatal stress can have effects on the cognitive development and temperament of the infant these effects are stronger when they occur later in gestation.

O'Connor, Heron, Golding, Beveridge, and Glover (2002) found that maternal anxiety during pregnancy could double the risk for hyperactivity in 4-year-old boys. Laboratory findings of pregnant mothers involved with tests and word tasks showed significant increases in systolic blood pressure and respiratory rate which was coincided with significant fetal heart rate increases (Monk et al., 2000). Martin et al., (1999) found that maternal distress during the first trimester was associated, especially with males, with negative emotionality at age 5. High-anxiety mothers showed more psychological and social pathology and their children showed poorer adaptation (Barnett, Schaafsma, Guzman, & Parker, 1991). Huizink et al., (2002) found that *pregnancy-specific anxiety* is associated with attention and behavior problems in 3 and 8 months old infants and high maternal anxiety during late pregnancy has been associated with lower mental development scores in 2 year olds (Brouwers, van Baar, & Pop, 2001). Fetuses of women with high degrees of anger were more active and experienced growth delays and as neonates, these babies had disorganized sleep patterns and less optimal performance on the Brazelton Neonatal Behavioral Assessment Scale (Field, et al., 2002). Table 1 summarizes the developmental research reported in this section.

Table 1

Effects of Maternal Stress

Author/ Date

Significant Findings

Van den Bergh (1992)

- Maternal physical and emotional states affect fetal heart rate, body movements, and breathing.

(table continues)

| Author/Date | Significant Findings |
|--|---|
| Lundy & Field (1996) | - Infants born to depressed mothers have fewer facial expressions in response to models of happy and surprised faces. |
| Field (1995) | - Infants born to depressed mothers have disrupted sleep patterns. |
| Zuckerman, Keener, Stewart, & Anders (1986) | - Newborn fussiness and non-soothability is predicted by a mother's depressive symptoms during pregnancy. |
| Martin & Dumbrowski (2008) | - Increased rates of serious mental illness in adulthood was related to prenatal stress. |
| Preti et al., (2000) | - Depressed mothers have been noted to report having had a depressed prenatal mother and a shorter gestation and lower birth weights. |
| Buitelaar et al., (2003) | - The effects of prenatal stress are stronger when they occur later in gestation. |
| O'Connor, Heron, Golding, Beveridge, and Glover (2002) | - Maternal prenatal anxiety doubles the risk for hyperactivity in 4-year-old boys. |
| Monk et al., (2000) | - Maternal anxiety in the laboratory setting coincides with increases in fetal heart rates. |

(table continues)

| Author/Date | Significant Findings |
|-------------------------------------|--|
| Martin et al., (1999) | - Maternal distress during the 1 st trimester is associated with negative emotionality at age 5, especially with males. |
| Barnett et al., (1991) | - High anxiety mothers showed more psychological and social pathology and their children showed poorer adaptation. |
| Huizink et al., (2002) | - “Pregnancy-specific anxiety” is associated with attention and behavior problems in 3 and 8 month old infants. |
| Brouwers, van Baar, & Pop (2001) | - High maternal anxiety during late pregnancy has been associated with lower mental development scores in 2 year olds. |
| Field, et al., (2002) | - Women with high degrees of anger had fetuses that were more active and experienced growth delays. As neonates, they had disorganized sleep patterns and less optimal performance on Assessment Scales. |

Chemical effects of maternal stress. There are a large number of women who experience prenatal depression, and many produce high levels of cortisol (Field et al., 2004). High levels of cortisol have been found to affect fetal development (Coe et al.,

2003), produce hypertension and other medical and behavioral problems (Seckl, 2001), affect the development of the ear (Canlon et al., 2003), and be related to the aetiology of schizophrenia (Koenig, Kirkpatrick, & Lee, 2002). Early morning cortisol levels during late pregnancy have been associated with lower mental and motor development with infants 3 and 8 months old (Buitelaar et al., 2003). Maternal anger can be communicated to the fetus through the placenta via high cortisol and adrenaline and low dopamine and serotonin levels. In one study, Field et al., (2002) found that pregnant women with high anger showed high levels of cortisol and low dopamine and serotonin which later were to be mimicked by their neonates' high cortisol and dopamine levels. Wadhwa (2005) and Wadhwa et al., (1998) found that elevated levels of cortisol can lead to preterm labor, reduced birth weight, and slow growth rate in infants that were stressed in the prenatal. Field et al., (2004; 2005; 2006) also found this to be true in numerous studies and reported that cortisol was the strongest predictor of premature birth and low birth weight. Table 2 summarizes the developmental research presented in this section.

Table 2

Chemical Effects of Stress

| Author/Date | Significant Findings |
|----------------------|---|
| Field et al., (2004) | - A large number of women experience prenatal depression and produce high levels of cortisol. |
| Coe et al., (2003) | - High levels of cortisol has been found to affect fetal development. |

(table continues)

| Author/Date | Significant Findings |
|----------------------------------|---|
| Seckl (2001) | - High levels of cortisol has been found to produce hypertension and other medical and behavioral problems. |
| Canlon et al., (2003) | - High levels of cortisol has been found to affect the development of the ear. |
| Koenig et al., (2002) | - High levels of cortisol has been found to be related to the aetiology of schizophrenia. |
| Buitelaar et al., (2003) | - Early morning cortisol levels during late pregnancy have been associated with lower mental and motor development with infants 3 and 8 months old. |
| Field et al., (2002) | - Pregnant women with high anger showed high levels of cortisol and low dopamine and serotonin. These effects were mimicked by their neonates' high cortisol and dopamine levels. |
| Wadwha (1998; 2005) | - Elevated levels of cortisol can lead to preterm labor, reduced birth weight, and slow growth rate in infants that were stressed in the prenatal. |
| Field et al., (2004; 2005; 2006) | - Cortisol was the strongest predictor of premature birth and low birth weight. |

Fetal stress reactions. McPherson (2006) explained that maternal emotion and stress can affect the offspring's physiology (neurochemistry, endocrine function) and psychology (emotion, cognition). Mothers under severe emotional stress can have hyperactive fetuses (Van den Bergh, 1992). Fetal activity measured through ultrasound has been found to be related to fetal stress reactions. For instance, Dieter et al., (2001) found that in fetuses of depressed mothers, fetal activity was significantly greater from 4 to 7 months gestation. Fetal activity has been found to be predictive of motor activity and temperament in neonates, infants, and toddlers. At 36 weeks, fetal activity was found to correlate with neonatal irritability, motor activity, reports by the mother of infant distress at 1 year, and behavioral inhibition at 2 years (DiPietro et al., 2002). Increased fetal activity was associated with more difficult, unpredictable, unadaptable, and active infants and high fetal heart rate was associated with lower emotional tone, activity level, and predictability (DiPietro et al., 1996). Field (2007) reported that in the above study, these variables accounted for between 22% and 60% of the variance in temperament scores postnatally, which suggests that fetal activity and fetal heart rate can be used to predict infant temperament. Gutteling, Weerth, and Buitelaar (2005) found that prenatal stress is associated with difficult behavior problems during the toddler stage. This finding is consistent through to 6 years of age when prenatal stress is associated with difficult temperament and the child's school grades (Niederhofer, 2004). Table 3 summarizes the developmental research presented in this section.

Table 3

Fetal Stress Reactions

| Author/Date | Significant Findings |
|----------------------------|---|
| McPherson (2006) | - Maternal emotional stress can affect the offspring's physiology and psychology. |
| Van den Bergh (1992) | - Mothers under severe emotional stress can have hyperactive fetuses. |
| Dieter et al., (2001) | - In depressed mothers, fetal activity was significantly greater from 4 to 7 months gestation. |
| DiPietro et al., (2002) | - At 36 weeks, fetal activity correlated with neonatal irritability, motor activity, infant distress at 1 year, and behavioral inhibition at 2 years. |
| DiPietro et al., (1996) | - Increased fetal activity associated with more difficult, unpredictable, unadaptable, and active infants and high fetal heart rate associated with lower emotional tone, activity level, and predictability. |
| Field (2007) | - Fetal activity and fetal heart rate can be used to predict infant temperament. |
| Gutteling et al., (2005) | - Prenatal stress associated with difficult toddlers. |
| Niederhofer et al., (2004) | - Prenatal stress is associated with difficult temperament and school grades through to age 6. |

Overall, the consensus is that cumulative exposure to patterns of emotion-induced physiological activity of the mother can have detrimental effects on the development of the fetus (as reviewed by Field, 2007; McPherson, 2006; Bergner, Monk, & Werner, 2008).

Disorganized attachment. Thomson (2007) noted that human studies on the earliest gestational periods have shown that during pregnancy maternal stress, including dysphoric mood, can have a profound effect on the prenatate (embryo and fetus) physiological systems. Her argument is that prenatal fetal stress responses do occur and that they are usually contingent on maternal stress. These stress responses can lead to severe traumatic and dissociative symptoms that can continue into the post-natal. Thomson believes that these severe reactions to stress could be the hallmark of disorganized attachment that originated in the prenatal. She posited that maternal unresolved states of mind about trauma and/or loss can be transmitted from the pregnant mother to the prenatate. An example of this transmission can be seen in infants born subsequent to a mother's stillbirth experience. Studies have shown that these infants tend to be more disorganized and exhibit more symptoms of stress (Thomson, 2007).

Degrees of stress. Kay (1984) reported how the fetal heart rate has been observed to show abrupt changes during periods of sudden maternal emotion. He suggested that this effect could be caused by a sudden change in maternal blood pressure or chemicals which cross the placental barrier. Although he believes that the permeability of the placenta renders the unborn child vulnerable to emotional and biological onslaughts originating from the mother, he argued that the onslaught must be of a significant force and duration. He stated:

It would appear that patterns of feelings which are deep and persistent, rather than transient and infrequent, have the most effect on the developing fetus. Maternal emotions such as chronic anxiety or ambivalence about motherhood can leave a deep scar on an unborn child's personality. (p. 325)

Kay seemed to support the notion that the maternal experience and emotional reactions to pregnancy, as well as her external life, play a major role in the early forming of psychic function and experience in the fetus. He argued that short-term episodes of emotion seem to help the early formation of the ego of the fetus. DiPietro (2004) suggested that mild stress is normal and even promotes development. In long-term situations, where the emotional experience is deemed as unbearable and characterized by strong emotional experience such as anger, anxiety, or depression, the effect can be detrimental to the fetus' emotional development. Kay cited a study by Stott (1973) to support his argument. In his series of studies and follow-up studies, Stott found that long-term stress that personally affected the mother and was perceived to be beyond resolution (i.e. severe marital discord) had a more adverse emotional effect on the unborn child than less personal stress that was deemed as manageable.

Kay (1984) also cited a well-known study (Rottman, 1974) that suggested that the fetus can discriminate between degrees of stress. Rottman's longitudinal study followed pregnant women through to after the birth of their children. His investigative findings led to a categorization of the pregnant mothers he studied. These were:

- 1) *Ideal Mothers* (who consciously and unconsciously wanted their unborn child) consistently produced the healthiest offspring, physically and emotionally.

- 2) *Catastrophic Mothers* (who had a rejecting attitude towards motherhood coupled with serious medical problems during the pregnancy) had the highest rate of premature, low weight, emotionally disturbed infants.
- 3) *Ambivalent Mothers* (outwardly accepting but inwardly doubtful) produced infants with behavioural and gastro/intestinal problems.
- 4) *Cool Mothers* (whose jobs and financial security were threatened by the pregnancy and who felt emotionally unprepared yet subconsciously desired and welcomed their baby) produced apathetic, lethargic babies who behaved as if they were confused.

In general, Rottman found that *catastrophic mothers* tended to have lighter or heavier babies, while mother's with negative attitudes toward pregnancy were more emotionally labile and aggressive which led to changes in their physiology such as pulse and breathing. He suggested that these frequent changes in physiology led to disharmony with the fetus' uterine environment and also its regulatory system. In his *Ideal Mother's*, Rottman found that these women tended to have the shortest and easiest labors and minimal problems in the pre and postnatal. Rottman distinguished six possible ways a pregnant mother's hostile attitude or unresolved emotional issues can affect the fetus and its development. These included:

1. Noxious actions (neglect of diet, excessive smoking, drug taking, professional stress).
2. Interferences in the process of pregnancy and birth (increased frequency of spontaneous abortions, prematurity, postmaturity, tendencies to reject the fetus psychosomatically).

3. Psychotoxic effects.
4. Disturbances of physiological rhythm.
5. Trauma of fetal displeasure.
6. Telepathic or Psi effects.

Kay's (1984), Stott's (1973), and Rottman's (1974) findings seem to support Grotstein's (1984) suggestion that the origins of the borderline syndrome could be related to developmental errors between mother and child early on. Grotstein also acknowledged the growing evidence that these developmental failures may occur in utero. He stated, "Clinical depressive illness and/or great disruptions of the pregnant mother's peace of mind may have more consequences upon the internal milieu of the fetal environment than has hitherto been thought and does influence fetal 'peace of mind'" (p. 102).

Maternal Representations of the Fetus

The desire for a child increases in parents throughout pregnancy and peaks just before birth. An *animistic projection* (i.e. anthropomorphic) of the fetus begins as soon as the mother feels the fetus move at about 20 weeks gestation (Gloger-Tippelt, 1988, as cited in Mcpherson 2006). Frank, Tuber, Slade, and Garrod (1994) described maternal representations as a mother's reconstruction of actual early experiences and relationships with their parents. Apprey (1987) suggested that in response to a sense of separateness with her fetus and later her infant, a mother will retrieve negative delegations or representations as a defense against anxiety or envy and attribute these to her child. Apprey referred to this process as destructive projective identification in which intense maternal misperception can lead to severe impediment of a child's development. Fava-Vizziello, Antonioli, Cocci, and Invernizzi (1993) found that a pregnant woman's

inability to elaborate an organized representation of the parental function is at risk for post-natal emotional and mother-infant dysfunction because it indicates the absence of a positive internal parental model.

In a landmark longitudinal study regarding pregnant mother's representations of their unborn children and the resulting use of projective identification that ensues in problematic emotional situations, Apprey (1987) studied 48 childbearing women from the third trimester of pregnancy to four years after delivery. Apprey's catalyst for this study was his interest in *destructive projective identification* that disturbed pregnant mothers tend to employ when dealing with excessive persecutory anxiety, envy, or intolerance of separation. Apprey described how through the use of destructive projective identification, the mother unconsciously injects her baby with the original spite, meanness, and aggression that is in her own self organization, resulting in an alteration of both her own self representation and her representation of her baby. The resulting affect on the fetus could be understood as an experience of a forceful entry from the outside to the inside (Klein, 1952). Given this definition of destructive projective identification, Apprey understood the mothers in his study as engaging in the following unconscious maneuvers:

1. Delegating unacceptable parts of her self onto the object, her infant:
 - a. The baby is mean: I am mean.
 - b. She is spoiled: I am spoiled
 - c. She bites people
2. Empathising with the object:
 - a. My baby is quiet: I am quiet

- b. My baby is attractive: I am attractive
3. Controlling:
 - a. I can't bear her to be away from me
 4. Inducing in the object what has been projected:
 - a. I fear that her temper, like mine, will get between us.
 - b. I fear that her stubbornness, like mine, will get between us. (p. 6)

Apprey (1987) argued that perhaps these types of projective identifications could be considered the primary content of maternal misperceptions. Apprey viewed these issues in pregnancy as crisis rather than illness and definitely not a state to be neglected. With this understanding, Apprey offered a sensitive understanding of the experience of the pregnant mother with Winnicott's (1975) concept of *Hate in the Countertransference* in mind. He stated:

She marshals a whole army of defenses to protect herself from such hateful feelings perhaps using reaction formation to overcompensate, to be as loving as possible. She may displace her hateful feelings on to someone else, or project them on to the child, only to be victimized all over again by fantasizing that the child is an aggressor. She may try to avoid blame by externalizing unacceptable feelings, or may adopt some defense to transform them into affects acceptable socially or to her ego. (p. 10)

Apprey ultimately argued for *pregnancy psychotherapy* (Apprey's treatment findings will be discussed in a later section) in which the aim of treatment would be to aid the mother in her emotional struggles during pregnancy as a preventative measure. He stated, "I suggest that psychotherapy for expectant mothers should focus on preventing

pathogenesis or on the removal of such risk factors as ambivalence and over-valuation of pregnancy due to maternal misperception” (p. 12).

Deutsch (1945) discussed the precarious emotional situation that develops during pregnancy. She explained that the pregnant woman’s relationship with her own mother is at the center of any psychological problems that might occur. What is at issue is the degree of psychological freedom the pregnant mother has from her mother. Deutsch argued that the pregnant mother must find a compromise in her ego between her deep identification with her unborn child, which is future oriented, and her deep identification with her mother, which is oriented toward the past. Stern (1992) suggested that a woman’s representations of her self, her fetus, and her mother are directly related to her relational history and associated conflicts and fantasies.

Raphael-Leff (1996) proposed a triple-stranded bond formation between the pregnant woman and her baby within her:

1. The Physiological System - the involuntary bodily processes and symptoms which acquire emotional significance within the intricate bi-directional exchange of their conjoint bodies.
2. The Psychohistorical System – constituting a powerhouse of fantasies feeding the woman’s representations, predetermining her psychological experience of pregnancy, and, by means of maternal transmission, taprooting the baby to emotional forbearers and significant others in the expectant mother’s inner world.

3. The Sociocultural Environment – the particular matrix of cultural beliefs and practices that defines parameters of each woman’s normative expectations and definitions of childbearing, childrearing, and childcare in her society. (p. 374)

Raphael-Leff’s argument is that the mother serves both psychically and physically as a *procreative container*, similar to Bion’s (1962) maternal function as a mental container, in which there is a systematic interchange of material and emotions through the placenta.

He explained:

While not suggesting isomorphism, I am playing here with the idea that the fertile womb as actual container of fetus, placenta, and amnion has an emotional corollary in the woman as “procreative container,” in which three influential systems converge – intrapsychic-familial, physiological, and sociocultural.

Stretching the metaphor to its limits, we may postulate that, within this generative crucible, an internalized ethos as influential as the genetic input of blood relatives contributes to the expectant mother’s (and father’s) psychic representations of the fantasy baby. It is even conceivable to imagine their pooled parental residues as a kind of “transgenerational placenta”—a veritable powerhouse dynamically generating or filtering out transmission of unconscious or cumulative personal and ancestral emotional deposits—of unresolved conflicts, disavowed projections, fond aspirations, and unacknowledged residues of intergenerational transference, all situated within the cultural amnion. (p. 379)

Arnott and Meins (2008) defined *mind-mindedness* as a mother’s tendency to focus on her child’s mental qualities rather than their physical or behavioral qualities. In their study, mind-mindedness of pregnant women regarding their fetuses predicted their

sensitivity and responsiveness to their 6 month old infants' internal states and emotional processes. This finding is consistent with Benoit, Parker and Zeanah's (1997) study that showed that mother's representations of their unborn children during the last trimester of pregnancy were stable across the transition to parenthood. Frank, Tuber, Slade, and Garrod (1994) also found that expectant mothers who referred more to their pregnancy, birth, and mothering on Rorschach responses was positively related to their infant's security of attachment following birth. They argued that these results support a relationship between empathetic maternal behaviors and maternal unconscious mental representations measured prior to birth.

Finally, Piontelli (1987, 1992) theorized that the unconscious characteristics projected onto many of the unborn babies she observed, as well as the neonates, played a major role in the formation of the child's emotional makeup and expectations that both the child and the parents had with regard to life after delivery. She stated:

Everybody ascribed motives to the behavior of the fetus, very much as is done with animals or with babies in ordinary life. All observations were also interspersed with remarks like 'he is a nervous type,' 'this one will become a dancer,' 'he is very calm,' 'she is sort of a reflective type,' 'she has a good character,' or 'he is using the placenta as a pillow' or 'look how badly he treats the cord.' (p. 10)

In one case, Piontelli (1987) noticed how one mother was very anxious and was having nightmares about the pregnancy. She also noted that the family was most concerned with the sex of the fetus and not so much about the fetus itself. Throughout the pregnancy, the fetus was immobile, tightly crunched in the corner of the womb, with

hands and arms covering its face. It seemed to be tense. Piontelli interestingly realized that this particular fetus was hard to observe; the only thing clearly visible was his sex. The birth was through caesarian and the obstetrician had trouble retrieving the baby from being crumpled in the corner of the womb. In subsequent observations following delivery, Piontelli noticed that the baby would cling to the breast for hours during feeding. As he got older, he preferred to sit in the corner always holding the same toy, never moving about.

Summary

While the mother's experience of pregnancy, and her effects on the fetus, seems to be a relatively new topic of study, a number of psychoanalytic theorists were identified that have shown an interest in these issues. Overall, these studies (overview presented in Appendix D) suggest that the mother's mind is a vital contributor to the emotional development of the fetus. It is widely assumed that the mother has numerous channels from which to transmit and communicate to her unborn child. Her levels of stress throughout the pregnancy can have a detrimental effect but it seems that there might be degrees to which maternal emotion can be useful or detrimental to the fetus' burgeoning ego. In the worst of circumstances, the mother is left with a feeling of desperation, where her projective identifications with her unborn child might feel like the only relief available to her. Consequently, her representations of her baby and herself could be altered and a vicious cycle could ensue. Perhaps Apprey's (1987) endorsement of pregnancy psychotherapy or Paul's (1997) suggestion of the study of the psychoanalysis of pregnancy is the next logical and practical area of study in the realm of the mother's mind.

The Experience of Sound and Early Object Relations

A third category was produced that is related to early object relations and the fetus' experience of the sound of the mother's voice in the intrauterine environment.

Bion (1977) had an intuition about the sound characteristics and experience in embryonic and fetal life. He stated:

The embryologist can speak about "optic pits" and "auditory pits." Is it possible for us, as psychoanalysts, to think that there may still be vestiges in the human being which would suggest a survival in the human mind, analogous to that in the human body, of evidence in the field of optics that once there were optics pits, or in the field of hearing that once there were auditory pits? Is there any part of the human mind which still betrays signs of an "embryological" intuition, either visual or auditory? (p. 44)

In her seminal paper, *The Sound-Object: A Hypothesis About Prenatal Auditory Experience and Memory*, Maiello (1995) created a context in which the music of auditory communication and the semantic meaning carried within, in addition to the verbal meaning carried by the spoken word, was recognized. She stated, "Verbal language can be seen both as vocalized text and as music conveying a semantic message. The spoken word is both meaning and sound" (p. 24). Symbol formation, according to Maiello drawing from Segal (1975), and symbolic thought require a capacity to bear the anxiety of separation from the primary object. Sound, could be understood as preceding separation and therefore preceding representation. The earlier the disruption in the capacity to tolerate separateness, relinquishment of omnipotent phantasy, and the resulting psychic pain, the higher the probability that the relationship with the primary

object and the emotions involved will be suppressed and distorted. Maiello noted ethnomusicologist M. Schneider's description of the primordial position of sound, rhythm, and music in the evolution of cultures. He argued that rhythm and music appear before visual images. He stated, "Music is located between the obscurity of unconscious life and the clarity of intellectual representations" (Schneider, 1960, as cited in Maiello, 1995). Maiello suggested that if we follow the music of language backward in time, "we cross almost unaware the border between postnatal and prenatal life" (p. 25).

In her paper, Maiello (1995) asked this fundamental question: Is it the moment of birth that inaugurates the possibility of dialogue? Or is it possible that proto-experiences in utero set in motion the development of the primitive ego that Klein (1952) posited is present at birth? According to Precktl (1989) the hearing capacity is completely developed by the age of four months gestation. By this time, the fetus can perceive medium and high frequencies while low frequencies were perceivable at a much earlier age. Low frequencies (the maternal heart-beat, the cadence of breathing, and the digestional noises) are thought to have a soothing effect, slowing down motor activity in the fetus, while medium and high frequencies are thought to enliven and stimulate motility. Maiello argued that these sounds are not only heard by the fetus in the uterine environment but these sounds also leave a trace in the memory of the fetus thereby creating the beginnings of a sound-code that the child's future language will be based. The fetus learns to distinguish mother's voice from other sounds which suggests that a proto-dialogue has begun.

Szejer (2005) also wrote about the newborn's capacity to recognize the mother's voice. She suggested that the newborn recognizes his mother's and father's voice, if the

father had talked to the baby during the pregnancy, because they are the voices that he heard throughout his intrauterine existence distorted through the abdominal wall. Szejer cited the work of acoustic physiologist Marie-Claire Busnel who found that the newborn's heart rate will slow when the mother is speaking and even more, interestingly, when she is speaking to it. In the womb, it has been shown that the fetus will turn his head toward the mother's words, open its eyes, and even move its arms. This suggests that the fetus learns to distinguish the mother's voice from the uterine background noises and the voices of other people. Given the evidence that also shows that fetuses prefer the mother's native language and ignores foreign languages (presented below), Szejer suggested that the newborn has an inborn capacity to discriminate a familiar language that was heard throughout gestation.

The Caesura of Absence and the Baptism of Space

Maiello (1995) referred to Bion's (1962) theory of mind in her argument. Bion believed that the absence of the breast is necessary for the development of the mind and thoughts. Maiello stated:

For thoughts to be thought by the mind, they must find an empty space to receive them, i.e. a space that has given up the phantasy of at-one-ness with its primary content...Without absence there is no thought, and without thought there is no language. (p. 26)

Maiello posited a sound language that already reaches the fetus during gestation. She suggested that the mother's voice introduces an element of discontinuity because it can be both present in the intrauterine environment and absent. It is an external object as uncontrollable as the breast will be after birth where the presence and absence of it will

not always be in harmony with the newborn's needs. This could be understood as a prenatal pre-conception of the postnatal breast. Maiello argued that the voice could be transformed by a proto-mental nucleus (proffered by Mancina, 1981, to be discussed in a later section) in which the presences and absences of the maternal voice will be processed and internalized as a rudimentary sound-object. The absence of the sound-object in utero could produce an experience of emptiness (not-present) which could serve as a space for thinking to develop.

In his seminal paper entitled, *Inner Space: Its Dimensions and its Coordinates*, Grotstein (1978) mapped out the dimensionality and space of the mind. He argued that man exists and thinks in spatial terms. External space is coordinated with internal space which becomes the context and perspective for thought. Grotstein explained that space in the mind originates during absences of the primary object. He stated:

I believe further that the development of the awareness and toleration of the gap, the space in distance and time between the going and coming of the primary object, constitutes the "baptism" of space. If the infant can contain this space in the absence of his object, he is able to initiate and expand his sense of space and is able there to be separate. Because of this he can perceive some separated aspects of his experience which he can begin to represent. (p. 56)

Maiello (1995) suggested that there is a germ of distinction of a *me* and *not-me* experience in utero. The presence of a stimulating voice enlivens the fetus and the absence of the voice constitutes the gap that Grotstein referred to above. Maiello wondered if the absence of the maternal voice-presence could generate desire. If this is true, then according to Maeillo, the fetus might engage in a proto-mental modification of

experience of the loss of the primary object. Bion (1962) believed that the infant was left with a choice upon the departure of the mother; to modify the experience with thoughts, in effect bridging the gap between the comings and goings of the mother, or to evacuate the experience. Utilizing thoughts to deal with the frustration and anxiety of a *no-breast* situation leads to the development of thinking and the development of the mind.

Choosing to evacuate the experience is the antithesis to thinking. Maiello argued that the fetus has an opportunity to give voice again to the lost object when desire for the enlivening voice exists in the gap. She even suggested that perhaps the ability for the fetus to put its thumb in its mouth and suck from the fifth month of intrauterine life could be an adaptive maneuver employed by the fetus to fill the gap of absence felt by the mother's vocal departure. In essence, this would mean that the fetus fills the tactile emptiness it perceives in its oral cavity (Maiello, 1995).

Maiello's (1995) paper on the *Sound-Object* serves as a catalyst and an inspiration for many of the psychoanalytic theorists interested in the emotional life of the fetus. Maiello's hypothesis of the development of a proto-mental Sound-Object extends the origins of early object relations from postnatal life to the prenatal. Her hypothesis also suggests that later patterns of protective reactions or defense mechanisms originate in utero (presented in next section). She argued that Klein's (1946) concept of the paranoid-schizoid position in which the infant splits the breast into good and bad objects might have a prenatal precursor in the mother's present and absent voice. She stated, "... 'the mouth that sucks the nipple that gives nourishing milk' might correspond in utero to 'the ear that listens to the sound of the enlivening voice'" (p. 28).

Findings in Support of Maiello's Hypothesis

Modern research has provided evidence to support Maiello's argument regarding the fetus' recognition of sound. For instance, newborns have been shown to prefer their mother's voice over that of a female stranger (DeCasper & Fifer, 1980), a story read by the mother during late gestation compared to a novel story (DeCasper & Spence, 1986), and their native language compared to a foreign language (Moon, Cooper, & Fifer, 1993). In a study aimed at examining fetal speech and language abilities, 104 low-risk fetuses at 33-41 weeks gestational age were studied using a familiarization/novelty paradigm. Fetal abilities to distinguish between the mothers' voice, a female stranger's voice, the native tongue of the mother, and a novel foreign language were measured. Results indicated that fetuses responded differently to their mother's voice than to a stranger's voice, and responded differently to the native tongue of the mother rather than a foreign language. The authors (Kisilevsky et al., 2009) suggested that these results show that not only are fetuses sensitive to the properties of the mother's voice and native language, but that fetal attention to and rudimentary memory and learning of voices and language originate before birth.

According to Lecanuet (1996), the mother's voice, her heartbeat, her movements (including footsteps), her breathing, and her digestion (stomach growling or borborygmi – the rumbling sounds caused by gas moving through the intestines) are the most audible and important sounds of the fetal experience. While these sounds are muffled due to the placenta, the uterine wall, and the mother's body, this muffling does not affect pitch (prosody or intonation), timing (rhythm), variations in loudness (accentuation), or variations in pitch register (including differences between male and female voices)

(Smith, Gerhardt, Griffiths, Huang, & Abrams, 2003). According to McPherson (2006) the most important organ for hearing is the cochlea of the inner ear. Vibrations are converted to neural impulses and varying frequencies are separated in the cochlea and numerous studies have demonstrated that the fetal auditory system begins to process sounds between 16 and 20 weeks gestation. When the fetus begins to pick up emotional cues and informative patterns of sound and movement from the mother's body, it can be said that *behavioral emotional communication* has occurred (McPherson, 2006). The most clearly audible sounds (mentioned above) depend most on the mother's physical and emotional state. According to Mastropieri and Turkewitz (1999):

...changes in voice intonation associated with an emotional state such as anger may be accompanied by increased respiration, causing a different pattern of diaphragmatic movements, as well as increased muscular tension and an increase in heart rate. Additionally, those physiological changes involved in the production of speech and which contribute to vocal intonation may also be detectable to the fetus, particularly because autonomic changes immediately precede and influence changes in voice intonation (Scherer, 1986). Temporal relationships between distinctive prosodic acoustic stimulation and distinctive responses associated with maternal physiological changes would provide an opportunity for associative learning (via classical conditioning) in utero. This form of learning would serve as a basis for the perception of and a differential response to different vocal expressions of emotion after birth. (p. 205)

Hepper (1992; 1996) suggested that prenatal hearing can indirectly promote postnatal bonding or attachment and in turn ensure the survival of the infant. Postnatal memory of

prenatal sounds have been shown to last longer with sounds that were heard most often and most consistently. Childs (1998) suggested that the fetal ability to memorize complex sound patterns and to process gestural aspects of language such as prosody, intonation, and contour informs the child of the intentions and emotions of the mother. These memories, according to Maiello (1995) could serve as a sound template, or proto-sound-object, in which there are pre-conceptions of a postnatal object, the breast that will contain the behavioral emotional communications that were experienced prior to birth. Table 4 summarizes the developmental research presented in this section.

Table 4

Findings in Support of the Proto-Sound Object Hypothesis

| Author/Date | Significant Findings |
|------------------------------|---|
| DeCasper & Fifer (1980) | - Newborns have been shown to prefer their mother's voice over that of a female stranger. |
| DeCasper & Spence (1986) | - Newborns prefer a story read by the mother during late gestation rather than a novel story. |
| Moon, Cooper, & Fifer (1993) | - Newborn prefer their mother's native language to a foreign language. |
| Kisilevsky et al., (2009) | - Fetal attention, memory, and learning of voice and language originate before birth. |

(table continues)

| Author/Date | Significant Finding |
|---|---|
| Lecanuet (1996) | - The mother's voice, heartbeat, movements, breathing, and digestion are the most audible sounds of the fetal experience. |
| Smith, Gerhardt, Griffiths, Huang, & Abrams (2003) | - While external sounds heard by the fetus are muffled due to the placenta and uterine wall, this muffling does not affect pitch, timing, variations in loudness, or variations in pitch register. |
| Mastropieri & Turkewitz (1999) | - The infant's capacity for perception of and responding to different vocal expressions after birth begins developing in the prenatal. |
| Hepper (1992; 1996) | - Prenatal hearing can indirectly promote postnatal bonding or attachment. |
| Childs (1998) | - Fetal ability to memorize complex sound patterns and to process gestural aspects of language such as prosody, intonation, and contour informs the child of the intentions and emotions of the mother. |

Lipovetsky's "Womb Speak"

Lipovetsky (2009) offered his own ideas regarding sound and early object relations. His theory spans the full spectrum of language development: somatosensory, acoustic, affect, and verbal. Lipovetsky (2010, personal communication) explained that maternal speech is both discrepant and continuous shortly after conception through to birth. While the auditory apparatus is not fully developed until around the 23rd week of gestation, Lipovetsky hypothesizes that the experience of sound to the embryo and fetus could be similar to a full body, undifferentiated somatic experience. He used the analogy of floating in a swimming pool in the center of a building that is full of machinery. The machinery is used to run the building. The machinery surrounds the walls of the pool and when the machinery runs, there are waves generated inside the pool. Lipovetsky suggested that the experience of speech and sound to the embryo and fetus could be one of being tossed in waves caused by the vibrations of the sound waves flowing through the amniotic fluid. These vibrations could be felt as varying degrees of pressure, flow, and resonance.

Somatosensory. Until the hearing apparatus is fully developed during the second trimester, the transmission of sound through the intrauterine environment occurs through the bone of the skull of the fetus (Querleu, Renard, & Crepin, 1981). While the sound of the mother's voice is readily audible, the sound characteristics are made up of primarily vowel sounds; the consonant sounds are diminished. This occurs because the amniotic fluid slows and stretches the sound waves allowing medium and low frequencies to move through while high frequencies are diluted (Rosner & Doherty, 1979). Because the sense of touch develops around the 7th week of gestation, the experience of sound during the

first and part of the second trimester is primarily tactile. Lipovetsky (2009) described this situation as a visceral phenomenon, that has an engulfing quality that alters the whole experience of being. He explained:

What will accompany the acoustic vibrations traveling through the amniotic fluid would be also changes in intra-abdominal pressure and its distribution, resulting in impacts on amniotic fluid and its movements. Speech would then be heard by the skin and the kinesthetic apparatus (vibration, proprioception, etc.). The fetus in the first and second trimester then can be hypothesized to have an experience of the mother's speech and voice that is markedly different from the sound and content that we have come to associate with it. (p. 5)

He continued:

As a global somatic experience maternal speech in utero is also interwoven with the affect and, perhaps, indistinguishable from the affect. We could say then that maternal speech (as opposed to speech of someone whose body is not continuous with the fetus) is experienced by the fetus during a substantial portion of his development as a non acoustic cluster of sensory experiences whose impact can be felt in different areas of his body simultaneously and by his body as a whole. It may be felt as gripping, enclosing, embracing, rocking, entrancing, intrusive, flowing, and pushing. This is clearly not an exhaustive list. (p. 6)

Lipovetsky (2010, personal communication) described this experience as akin to the experience of being at a rock concert. The loud music, especially the bass and drums, are felt to completely surround you. It touches, resonates, and vibrates your body. If the knowledge of the band that is playing the loud music is erased from consciousness, then

one would have a complete somatosensory experience. The low qualities of the sound would have a gripping quality that would lead to a full body experience.

Acoustic. Acoustic vibrations are associated with high frequencies as well as consonants in language (Lipovetsky, 2010 personal communication). The ability to decipher the acoustic qualities of sound is not available until the hearing apparatus is fully developed around the fifth month of gestation. Once hearing is online in the fetus, the old experience of sound is now combined with the new experience of sound. In other words, tactile and somatic experiences of sound are now extended to include acoustic experiences. There is a continuity of perception of sound that is now somatic plus acoustic.

Affect. Krokoff, Gottman, and Sass (1989) devised studies of couples in the laboratory setting in which they videotaped and audiotaped dialogs amongst couples in conflict. Utilizing the Specific Affect Coding System (SPAFF), it was found that an enduring pattern of contempt in the coded affect of couples in conflict predicted the demise of the relationship. In later studies, Lipovetsky (2010, personal communication) explained that these recordings were analyzed after having the high frequencies or consonants pulled out, leaving only low frequencies to be coded. These low frequencies, in essence, created sounds that were much like a series of bellows. What was discovered was that the contempt coded in the first series of studies was still coded when the SPAFF was used to code the second series of bellows. Lipovetsky argued that these altered recordings of low frequency vowel sounds recreated the intrauterine environment. So in addition to a somatic experience that is then extended by an acoustic experience as the hearing apparatus develops, there is also an affective dimension in the experience of

sound in utero. The affective experience is carried by the low frequencies of sound from the maternal voice from the beginning.

Verbal. In language development, these three dimensions of somatic, acoustic, and affect come together to create auditory processing (Lipovetsky, 2010 personal communication). The registry of language during the last trimester and after birth is both conscious and unconscious. In the conscious mind, there is a decoding of symbolic elements because according to Lipovetsky, this is how we are programmed to communicate. In the unconscious mind, somatic and affective dimensions are registered. In psychoanalytic situations, the patient can use these aspects of language to communicate total primitive experiences. Some patients might project intense affect through unconscious communication in what Lipovetsky refers to as *bellowing*. A bellow comes from the belly, much like the way Shakespearian actors are trained to speak. Belly speech has more bass and can be used in sessions to dehumanize, grip, or force one into submission. In effect, the experience can feel as if the patient is forcing the analyst into a bubble of hostile affect. This can lead to an inability to think and also a feeling of wanting to withdraw into the body. In contrast, one who speaks exclusively from the throat in sessions could be thought of as projecting no affect, in effect attempting not to be found.

Another use of language Lipovetsky (2010, personal communication) discussed was what Bion referred to as the use of words as missiles that are meant to destroy thinking and communication. Lipovetsky (2009) described a patient that would use short phrases such as “the dog” or “this is just like the dog” (p. 6) that were meant to describe a total experience from his history. This patient would become enraged when Lipovetsky

would attempt to interpret the patient's images into words because it was felt that his interpretation diminished the patient's experience. In essence, the patient used words in an idiosyncratic way not to represent his experience but to project it. In this way the "feeling (affect and soma) of speaking and the meaning (psyche) of speaking in these instances are not distinguished from one another" (p. 6). Lipovetsky likened this situation to the grammatical part of speech, metonymy, in which a concept is described not by its name but by a name that is intimately associated with it. An example of this would be the use of the word "Washington" to describe the federal government. With primitive patients that utilize language in this way, "the totality, the force of nature dimension of a phrase, is paramount" (Lipovetsky, 2009, p. 9).

Lipovetsky (2009, 2010 personal communication) hypothesizes that the usages of language described above could be echoes of the embryonic and fetal experience of the sound of the maternal voice. He explained:

I am proposing that as a result of a breakdown in development after birth patients may return to a template or set of pre-conceptions established long before birth, and that those continue dominating the areas of personality where differentiated representation of experience has been found impossible. (p. 11)

Lipovetsky argued that our knowledge of language can interfere with our perceptions of the sounds of speech and his theories suggest that the experience of sound to the fetus could significantly influence language development and usage in postnatal life.

Summary

The third core category produced (an overview of the sources analyzed are presented in Appendix E) was related to early object relations and the experience of

sound in the intrauterine environment. Maiello (1995) hypothesized the formation of a proto-mental sound object that serves as pre-conception for the postnatal maternal breast. Maiello drew upon Bion's (1962) theory of thinking to support her argument. Lipovetsky (2009; 2010 personal communication) offered a theory of auditory and language development that includes the somatosensory, acoustic, affective, and verbal elements of these abilities. He posited that the early experience of the maternal voice to first the embryo and then to the fetus can be thought of as a total body experience that vibrates, resonates, and can grip the being in gestation. These early experiences can be re-presented in the postnatal in which psychoanalytic patients might use language in a similar way. It was argued that consideration of these aspects of sound and language should be included in psychoanalytic encounters.

Prenatal Trauma and Protective Reactions in Utero

Analysis of the psychoanalytic literature produced a fourth category related to prenatal trauma and resulting protective maneuvers employed by the fetus. These concepts emerged from the analysis: Tustin's (1980; 1981; 1986; 1990; 1994) theories of autistic encapsulation and her later applications to prenatal life; Maiello's (1997; 2001) extension of Tustin's conjectures; Rosenfeld's (1987) concept of *osmotic pressure*; Ogden's (1989) concept of the *autistic-contiguous position*; Bick's (1968) concept of *second skin* phenomena; Grotstein's (1990a) concept of the *black hole*; and Piontelli's (1993) observations of possible *second skin* phenomena in ultrasounds of fetuses.

Tustin's Theories of Autistic Encapsulation and Applications to Prenatal Life

Field (2007) described prenatal stress as a relationship between the physical and emotional states of the mother and the reactions to these by the fetus. She explained:

Prenatal stress comes in many forms, including the daily hassles, depression, anxiety, anger, panic disorder, posttraumatic stress disorder, and even optimism/pessimism experienced by the pregnant woman. These emotional states seem to stimulate stress hormones and excessive activity in the fetus, and, in turn, contribute to fetal growth delays, obstetric complications, and undesirable neonatal outcomes, including prematurity, low birth weight, and less optimal motor and mental development both short-term and long-term effects. (p. 25)

Frances Tustin (1980; 1981; 1986; 1990; 1994) was immersed in one such reaction of children when met with considerable emotional pressure from the outside world, specifically from the primary caregiver. Tustin (1981) described the psychological conditions necessary for psychological birth and the horrible emotional consequences that

ensue when this situation is mismanaged. She described the feeling of *flowing-over-at-oneness* as an illusion by which a feeling of *primal unity* is maintained. Her argument here is that in spite of the caesura of birth, the sensations of being in a watery medium sheltered in the mother's womb seem to carry over to the postnatal where a feeling of shelter continues, but in the womb of the mother's mind.

In normal development, according to Tustin, the earliest integrations are of sensations of *hard* and *soft* objects. Hard objects are associated with *discomfort* or *unpleasure* while soft objects are associated with *comfort* and *pleasure*. Gradually, soft objects become associated with *taking in* while hard objects become associated with *entering* or *thrusting*. A successful integration of these sensory experiences can be seen in the nursing situation where baby and mother come together for suckling and feeding. The hard objects (nipple-tongue) come together with soft objects (mouth-breast) to create what Tustin called a state of *well-being*. But in situations where the illusion of *primal unity* is severed or the overflow of anxiety or even ecstasy as in the case of the baby at the breast, is mismanaged or unmanageable, there becomes a precocious sense of twoness that is fraught with disaster (Tustin, 1981). This can lead to what Tustin (1980) described as a ritualistic use of *autistic objects* in which there is a *sensation-dominated state* that obstructs relationship or development. In reaction to early trauma, these children can turn to rigid uses of *hard objects* such as metal toys or cars etc. that are thought to create a *hard bit* that the body is bonded to in order to keep from feeling like the body and the mind are dissolving or disintegrating into non-existence. Often times, the catalyst of this situation is the flowing over of the mother's own unbearable emotions. Because of her own struggle, she is unable to contain the raw sensory experience of her baby which leads

to bouts of massive projective identification in both directions. The resulting protective maneuvers employed by the child lead to the formation of an impenetrable protective shell that wards off the harsh premature experience of twoness (Tustin, 1981).

Consequently, these children become extremely difficult to reach and unresponsive to nurturing which leads to a halt in development. Tustin (1981) explained, “Such children are aware of too much, too soon, too harshly, too suddenly for them. They experience an agony of consciousness which is beyond their capacity to tolerate or to pattern” (p. 192). In place of gradual psychological birth is an abrupt *psychological catastrophe* which must be avoided at all costs. Removal of the protective shell, according to Tustin, would lead to a repetition of the trauma that these children have already experienced.

Evidence in support of Tustin’s theories. Tronick, Als, Adamson, Wise, & Brazelton, (1978) utilized the still-faced paradigm in which an infant and mother established an ongoing affective connection through facial expressions, vocal rhythms and sounds, and body movements only to have it disrupted by the mother taking on a non-affective still-face. What they found was that an infant in response to the mother’s withdrawal, moved from visible enjoyment to visible frustration and disorientation. But, when the mother reengaged with her infant, the infant became regulated once again and returned to blissful interpersonal interaction. Subsequent research in this area built on the findings of this initial study that suggested co-regulatory mechanisms at work. Tronick (1980) demonstrated that an infant’s affective communication and behavior is regulated by differentiation and regulation of high versus low arousal states. In the still-faced studies, it was found that infants would make repeated attempts to engage their caregiver only to retreat into a gaze aversion once the distress of the failure to engage their mother

had settled in. Tronick and Gianino (1986) argued that this reaction could be similar to what happens with infants of depressed caregivers. Furthermore, Tronick and Gianino acknowledged that many of the offspring of depressed mothers show a considerable negative affect from birth that can be observed not only in interactions with the mother but also with other adults as well. Field (2007) reported research that indicated that fetuses of depressed mothers tend to be more active in utero and fail to show a preference of the mother's face and voice as newborns (Hernandez-Reif, Field, & Diego, 2004).

Table 5 summarizes the developmental research presented in this section.

Table 5

Findings in Support of Tustin's Theories

| Author/Date | Significant Findings |
|--|--|
| Tronick, Als, Adamson, Wise, & Brazelton (1978) | - Still-faced paradigm: infants move from enjoyment to frustration/disorientation with disengaged mother. Regulation returns when mother re-engages. |
| Tronick (1980) | - An infant's affective communication and behavior is regulated by differentiation and regulation of high versus low arousal states. |

(table continues)

| Author/Date | Significant Findings |
|-------------------------------|---|
| Tronick & Gianino (1986) | - The gaze aversion reaction observed in infants in the still-faced paradigm could be similar to the reaction an infant has to a depressed mother. The gaze aversion characteristic has been observed in newborns of depressed mothers. |
| Field (2007) | - Fetuses of depressed mothers tend to be more active in utero. |
| Hernandez-Reif et al., (2004) | - Newborns of depressed mothers fail to show a preference for the mother's face. |

Maiello's Hypothesis of Prenatal Trauma and Autism

Tustin (1990) began to wonder about the fetal experience and the possibilities of emotional life in utero. Her curiosity was peaked as she contemplated the origins of autistic encapsulation for children who were born with these symptoms. She stated,

My own clinical work makes me suggest that, in a few children, these reactions can occur even earlier. Since some children seem to be autistic from the day they are born, I suggest that aversion reactions associated with precocious and aberrant ego developments can occur as early as the last trimester of pregnancy. This seems to be borne out by the fact that in the syndrome that paediatricians call "foetal distress," a foetus that is near to term prematurely starts to suck and to

defecate, as if it is already born. This is usually in response to some emotional upset in mother. (p. 87)

Tustin cited Stein's (1967) argument that autistic reactions are akin to auto-immune reactions employed to resist inimical alien substances. Tustin wondered, "Perhaps the mother comes to be such an inimical alien substance to an autistic child. This can be thought of as a threat to 'going-on-being' in utero" (p. 87). Tustin (1994) later refined her conceptualization of autism to a two stage illness: First, there is an abnormal merger or a dual excessive adhesive unity with the mother's body as a reaction to the first unbearable moments of bodily separateness. Second, there is a traumatic disruption of the adhesive unity which leads to an autistic retreat.

Maiello (1997; 2001), following years of supervision with Tustin, took up Tustin's conjectures regarding aversive reactions in the prenatal. She understood that if Tustin's (1994) position that autism is a two stage illness was correct, and there existed in the world children born with autism (the second stage), then it would suggest that the first stage of the illness took place in the prenatal. In an application of her theory of the proto-mental sound object, she realized that trauma could exist in utero if there is a deprivation or absence of an enlivening maternal voice-presence throughout pregnancy. A fetus can receive clues regarding the mother's state of mind and a depressed mother's voice will be flatter melodically and in emotional tone (Maiello, 1995). McPherson (2006) described the link that occurs with regard to the sound characteristics experienced by the fetus and resulting biochemical changes that can have predictive qualities over time. He stated:

As changes in maternal sound and movement patterns in response to an external event are faster than associated biochemical changes, they are also predictive of

those biochemical changes. Once the different responses have been linked by association, the faster sound and movement responses can act as an early warning system. (p. 8)

There is also the possibility of overwhelming pressure communicated through emotional and biological channels between mother and fetus as the result of severe maternal depression or psychosis. Maiello (1997) acknowledged, as did Tustin, that individual differences could predispose a child to retreat into autistic encapsulation, but she was also sensitive to the possible consequences of severe disturbances in the mother. Tustin (1986) had reported that all mothers of her young autistic patients had been depressed either before or after birth. This fact lends support to Grotstein's (1983) suggestion that maternal depression during pregnancy can have a biochemical assault upon the amniotic bath of the fetus. Rogers et al., (1999) in his study on factors related to fetal death argued that fetuses can go into a state that is similar to shock in which there is a shutting down of all development in an attempt to protect itself and ensure survival of a potentially hostile environment. Rosenfeld's concept of *osmotic pressure* was also included in Maiello's argument.

Rosenfeld's "Osmotic Pressure"

Rosenfeld (1987) described the work of his colleague, June Felton (1985, unpublished), in which she conceived of a situation in her clinical work with autistic children that she referred to as *osmotic overflow or pressure*. Felton believed that there were feelings, experiences, and memories that existed within certain mothers that were unbearably disturbing. So much so, that the mother would employ mechanisms by which these old feelings and memories would be hidden completely from consciousness. The

experience of pregnancy and the presence of the fetus would lead to a feeling of pressure from inside the mother. Unable to tolerate these re-emerging emotions, the mother unknowingly leaks out these disturbing experiences to the fetus. Felton described this phenomenon as an overflow of something that the mother was determined to hide forever. The fetus is ultimately unable to manage the *pressures* flowing into him. In her autistic patients, Felton could observe severe withdrawal from or phobia of the mother. These children would exhibit severe autistic behaviors. These behaviors were described in one child patient as such:

To defend himself against the “osmotic pressure” this autistic child used blocking mechanisms which prevented the pressure entering him. It seems that the child constantly anticipated the mother’s disturbing reactions and shut them out because he recognized that the mother was dangerous to him and he had to shut her out.
(as quoted in Rosenfeld, 1987, p. 185)

Rosenfeld (1987) described another unpublished work by Steiner (1982) in which a second conceptualization of the experience of osmotic pressure was discussed. Steiner’s aim was to offer an approach to understanding contradictory feelings presented from primitive patients within an analytic session. Steiner suggested that primitive or evacuative projective identification could be better understood through the use of an image of an *osmotic system* in which pressure is the key component. Rosenfeld explained that Steiner’s postulation was that the most primitive forms of projective identification were actually a relic of the osmotic system in utero. Taken together, these two theories of osmotic pressure provide a model that could be used to think about the experience of a fetus that is in receipt of overflow of unbearable, perhaps catastrophic

emotional material that has leaked out from the mother's psyche by way of her emotional states and her biological exchanges through the placental barrier.

Rosenfeld (1987) explained that the mothers experienced by June Felton seemed to possess areas in their minds that they were extremely disturbed by and embarrassed about and that the pregnancy activated that which was not ever to be known. The resulting seepage into the fetus led to problematic relations in the postnatal. He stated:

The fetus seems to be completely helpless to ward off this "osmotic pressure" coming from the mother, which dominates the fetus and later on the child. This process continues after birth and prevents the child from forming a normal relationship to the mother. (p. 276)

He goes on:

Children of mothers of this kind are from the beginning of life phobic about their mother. They are terrified that they may at any moment have to guard against something very frightening which is being forced into them. They need to block the mother's influence... (p. 276)

Ogden's Autistic-Contiguous Position and Bick's Psychic Skin

Maiello (1997; 2001) described in detail her understating of fetal protective reactions to prenatal trauma utilizing Tustin's theories on autistic encapsulation. According to Tustin (1994), as we trace symptoms and primitive mental states backward in time toward the origins of life, physical and psychic events are more difficult to separate. Once the emergence of proto-mental activity occurs in the prenatal, "every physical event has its psychic counterpart" (Maiello, 2001, p. 108). Furthermore, Tustin (1990) considered autistic encapsulation as a *protective reaction* rather than a

psychodynamic defense mechanism. *Adhesive-at-oneness* (Tustin, 1994) is an extreme reaction to the first unbearable moments of awareness of bodily separateness from mother. Touch or the tactile sense is the only way by which a child can ensure a no-distance situation with the primary object. Maiello explained that autistic born children may have employed excessive tactile sensations in order to block out a proto-mental awareness of separateness in utero. Maiello (1997) also suggested that the effect of rhythm in utero in which the reliability of the mother's heartbeat ensures a foreseeable *going-on-being* is disrupted at birth. The mother's heartbeat, along with all the other internal noise of the mother's body, disappears. She argued that this experience could also be severely traumatic, especially if there is an abnormal merger during pregnancy. She stated, "The last heartbeat means that a life has ended. This is true for the mother's heartbeat at the end of prenatal life" (p. 14). She suggested that an extension of Ogden's (1989) concept of the autistic-contiguous position to the prenatal could help explain this phenomenon.

Ogden (1989) based his concept of the autistic-contiguous position on Freud's (1923) notion that *the ego is first and foremost a bodily ego*. He essentially considered this mode of being as a sensation dominated state in which tactile sensory experience at the skin surface was primary. In normal development, according to Ogden, the autistic-contiguous position is pre-symbolic in which the child is preparing for symbol formation. When this mode is pathological, the child aims to remain in a closed system that is asymbolic which keeps the child unaware or impervious to anything unpredictable or unknown. Anxieties related to this condition involve a desperate attempt to hold oneself together for fear of not only catastrophic anxiety and disintegration but also of a feeling

of a failure of the psychic skin and sensations of leaking out, spilling away, or falling forever (Ogden, 1989). Ester Bick (1968) talked about the function of the skin in early object relations. She distinguished between the experience of disintegration, which could be understood as a defensive process, and unintegration which could be understood as a passive, helpless experience where there is a lack of ever having had an adequate container for emotional contents. Disturbances in the first skin formation could lead to pathological *second skin* phenomena in which a type of *muscular shell* or *verbal muscularity* is developed (Bick, 1968).

Grotstein's Concept of the "Black Hole"

Grotstein (1990b) took this situation a step further and conceptualized these types of disturbance as *black hole phenomena* in which there is felt to be a void in the mind that is characterized by "terror of nothingness and boundarilessness on one end and that of implosive, claustrophobic engulfment and entrapment on the other" (p. 39). He argued that severe separation anxiety and meaninglessness are the hallmark of psychosis that have been described by patients as an experience of "floorlessness, boundarilessness, a sense of extreme precariousness, of imminent disaster" (p. 40). According to Grotstein, the concept of the black hole was first considered by Bion (1970) in his descriptions of *infantile catastrophe*. Tustin (1986) referred to this phenomenon as the felt place in which the mother's bond to the infant was ripped apart, leaving the infant with a hole in the place where the bond had once existed. Grotstein employed Bion's concept of *alpha function in reverse* in which a psychotic patient refuses alpha function from the containing object, thereby refusing to accept, experience, and suffer reality to explain his theory. In this situation, the psychotic either transforms beta elements into *bizarre*

objects in order to avoid reality or there is a phantasied alteration of reality to *rectify psychotic confusion*. Grotstein (1990a) offered a model in which nothingness and meaninglessness originates and perpetuates:

- a) Primary meaninglessness (non-organization), which is our uncommitted potential for meaning but exists as a potential until summoned. It can also be thought of as primary undifferentiation;
- b) The experience of an “at risk” infant in terms of suffering the upsurge of primary meaninglessness without a holding environment and/or containing environment to adjust to immersion into life in attunement with the surfacing of the chaos within him, resulting in pathological (secondary) meaninglessness (disorganization);
- c) The result of the collapse or withdrawal of meaningfulness from self and from the personal internal objects and representations of objects in the inner world (decathexis). (p. 272)

Maiello’s (1997; 2001) theory would suggest that the fetus experiences a sense of meaninglessness or a *black hole* as a result of an absence of a containing sound-object or maternal voice or the result of overwhelming pressure experienced from the mother’s undigested emotional trauma. In both cases, an autistic shell or *second skin* could be employed in utero in which the developmental processes are shut down and the outside world, including the potential soothing effects of the mother’s voice are shut out. This theory could be supported by Tronick’s research on the still-face paradigm in which the infant utilizes *gaze aversion* in order to protect itself from high or low arousal states. Field’s (2007) reports of active fetuses of depressed mothers who were unable or

uninterested in the mother's voice and face as infants also lends support to Maiello's theory. Hence, the resulting situation at birth could be a severe autistic encapsulation, possibly compacted by the abrupt separation of the birthing process.

Piontelli's Observations of "Second Skin" Phenomena

Piontelli (1993) reported second skin phenomena in certain fetuses that she observed. She explained that these fetuses would curl up around themselves or tuck themselves into a corner of the womb as if to create a strong muscular-like shell around their bodies. In other fetuses she observed a seemingly *intolerance for life* in which there was an abnormal stillness and hypersensitive withdrawal from any stimulus as if always expecting pain. She also was astonished by the fact that all the mothers and many fathers had reported a sense of something being wrong or strange with their babies during gestation. These parents reported an odd stillness of the fetus or crazed movements in response to sudden noises or sounds. In addition, in the two most severe cases Piontelli observed, she was aware that the parents seemed to feel no guilt for *the dreadful mental state of their child*. She stated, "They considered these states to be something that descended on to the child without any influence of their own" (p. 128).

Summary

A core category related to prenatal trauma and protective reactions in utero was identified in the analysis (overview presented in Appendix F). Maiello (1997; 2001) took Tustin's (1994) theory of autism as a two stage illness that is comprised first of an abnormal adhesive unity and followed by a traumatic rupture leading to an autistic retreat and extended it to the prenatal. In her argument, the fetus experiences an abrupt sense of separateness either through a marked absence of an enlivening maternal voice or due to

osmotic pressure (Rosenfeld, 1987) overflowing from the maternal psyche into the amniotic bath of the fetus (Grotstein, 1983). The fetus develops a protective reaction through use of excessive tactile sensory experience. The auditory experience and distance perceptions are in effect shut down in order to block out awareness of otherness. Instead of the maternal voice offering alpha-elements, containment at an auditory, distance level, her voice offers undigested beta-elements which the fetus must protect itself from. The fetus has no way of avoiding an intrusive or disturbing presence and may be forced by *catastrophic sensations of helplessness* (Maiello, 2001) or a massive sense of meaninglessness (Grotstein, 1990a; 1990b) into an autistic retreat. Grotstein's (1990a; 1990b) conceptualizations of the "black hole" could be applied to the experience of the fetus as it negotiates the absence of containment or the overflow of pressure from the outside world.

Proto-Mental Processing, Pre-conceptions, Inchoate Alpha Function, and the Origins of the Unconscious

A fifth core category related to proto-mental processing, pre-conceptions, inchoate alpha function, and the origins of the unconscious emerged from the analysis. This section is primarily comprised of these concepts: Mancia's (1981) hypothesis regarding the proto-mental nucleus; Bion's (1962) concept of pre-conceptions; Grotstein's (2007a; 2009) concept of inchoate alpha function; Chuster's (2010) ideas regarding the origins of the unconscious; and Van Buren's (2002; 2005; 2010) application of Bion's *wild thoughts* to the evolution of the unconscious mind.

Proto-Mental Processing

Mancia (1981) offered a seminal paper in which he outlined his theory of the construction of a proto-mental nucleus or a rudimentary prenatal psychic mind capable of transforming and integrating the constant bombardment of stimuli the fetus is required to reckon with during nine months of gestation. The central component to his theory is a development and subsequent utilization of *active sleep* which can be thought of as analogous to *REM sleep* in the adult. He explained that REM sleep helps to process and integrate sensory and psychic experience in the adult and active sleep can be thought to do the same in utero. Active sleep in the fetus also aids in the process of helping to differentiate undifferentiated functions in structures that are built upon both sensory and psychic experience as well as inherited characteristics from both parents. In essence, active sleep aids in maturation of the fetus' emotional and biological structures.

Mancia's (1981) understanding of development in utero is based on rhythmicity and constancy of stimuli experienced in the maternal container. He suggested that these

components constitute the first human relationship with the inside of the mother's body and bring about the "spring of a biological clock in evolution" (p. 351). By the 7th week of gestation, motility is already observable and avoidance responses to aversive stimuli are apparent during this time. At the 14th week, it is possible to observe specific responses that are more positive than adversative where "a stimulus to the zone around the mouth, for example, elicits a specific movement of the head towards the stimulus" (p. 352). Mancina (1989) referred to these early patterns of movement as genetically determined, necessary for the preservation of life. He noted Piontelli's (1987) work that showed how individual fetuses seem to show a specific motor reaction during this time, so much so that it was possible to gain insight regarding future character.

By the 28-30th week, eye movements appear. At this point, the motility of the body and the eyes are organized independently but are not unrelated. Eye movements increase in complexity over time, especially in relation to active sleep which is connected to cerebral maturation while bodily movements decrease when active sleep is initiated. According to Mancina (1981), the sensory system in the fetus develops early and its maturation is directly related and dependent on the relationship with the maternal container. He believes that this relationship is mediated through the experience of rhythmicity and constancy. The internal environment of the mother's body provides continual stimulus which dominates the fetal sensory system. Through multiple channels of transmission via hormones, muscular tone, vasomotor tone, and temperature the mother influences fetal development through her biological rhythms.

Mancina (1981) offered three hypotheses regarding the formation of the proto-mental nucleus and resulting development and maturation that occurs. The first of which

was that active sleep in utero constitutes a sensory integration comparable to the processes that occur in adult REM sleep. He explained that as development progresses, the neuro-physiological processes that are present in active sleep become more complex which leads to an increasing level of integration. Initially, these processes and the stimuli that come before can be thought to be undifferentiated, where the biological and psychological stimuli are confused. Later, following greater integration, these processes yield to various distinct functions.

With regard to these undifferentiated biological and psychic processes that are confused or mixed up Mancina (1981) suggested that the atypical movements or jerks of limbs or body observed in a sleeping fetus, a premature baby, or even in neonates can explain this phenomenon. These stimuli originate in sensory experience coming from the external world and also from genetic material being passed to the child from the mother's and father's genetic code. For example, Mancina (1981) discussed the parameters of REM sleep and the contributing factors that are involved. He stated, "Some parameters of REM sleep, such as duration, distribution, and amplitude of PGO waves and eye movements can be genetically transmitted" (p. 353). Because active sleep can be observed so early in gestation, Mancina suggested that sleep structures could be amongst the first to form and mature. At this point in development, the fetus can be considered to be dealing with raw sensory input coming from the maternal container and biological functions that originate in the genes of the parents and are passed on during active sleep.

Mancina's (1981) second hypothesis is that psychological elements might also be passed on to the fetus during active sleep from the mother. When these stimuli are mixed with raw sensory experiences, integration of both can form *internal representations*

which constitutes the beginnings of the proto-mental nucleus. Mancia referred to this situation as *primary mental activity* in which the fetus receives stimuli from the internal world and sensory experience from the external world. He suggested that during integration there is a reading and decodifying of these rhythmic and constant stimuli. Rascovsky (1971, as cited in Mancia, 1981) argued that internal representations are also inherited independent of external experience. Rascovsky also believed that the life and death instincts were already online in utero but that these instincts are mediated by the relationship with the mother via the umbilicus. Mancia (1981) added that the death instinct could also be mediated by active sleep as evidenced by studies that have illustrated the detrimental effects of REM sleep deprivation. These patients usually end up in a sleep deprived induced psychosis. Taken together, Mancia argued that inherited internal representations are built upon and integrated with sensory experience from the external world, as well as inherited biological processes, which leads to the construction of the proto-mental nucleus. He also suggested that these constructed representations constitute what Bion (1962) considered to be pre-conceptions.

Mancia (1981) discussed Bick's (1968) conceptualization of the psychic skin and he applied it to the experience of prenatal psychic life. He explained that the skin holds the psyche together and is built upon integrated sensory and psychic experience. He suggested that the skin not only holds the psyche together but it also protects the mental nucleus. A successful or adequate formation of the primary psychic skin in utero prepares the neonate for the activation or re-activation of the death instinct which in Klein's (1952) model would give rise to persecutory anxieties experienced by the baby at birth. Because the intrauterine life is lost, the infant must bear the catastrophic anxiety

brought on by the loss of rhythm and constancy and the new experience of randomness of stimuli in a gaseous medium. Furthermore, Mancina argued that the function of the psychic skin perpetuates the formation of a container-contained relationship that is indispensable for the creation of an apparatus for feeling and thinking (Bion, 1962). Therefore, Mancina's (1981) third hypothesis is that sensory information transmitted from the skin to the proto-mental nucleus during active sleep is first experienced as beta elements but is transformed into alpha elements (Bion, 1962). The intense atypical, random motor activity observed during active sleep in the fetus, in premature babies, and in neonates then could be understood as beta elements that have escaped transformation. Bick (1968) argued that the best object for the neonate is the nipple in the mouth while being held by mother, hearing her soothing words and smelling her familiar smells. In Mancina's (1981) proto-mental nucleus, the fetus is contained through the gradual formation of a psychic skin that is felt to protect the internal contents of the fetus' burgeoning mind. Without the formation of the primary psychic skin, Mancina argued that there will be regressions to archaic forms of activity, perhaps where the biological and psychic sensory stimuli were confused and undifferentiated, characterized by the formation of a second skin and absence of a sense of internal space in the fetal mind. Mancina argued that premature babies have been observed to have formed abnormal motility which represents the use of a substitutive second skin. He suggested that these excessive movements utilized by the premature baby function in a way that allows the baby to confront, without disintegrating, the anxieties brought on by birth and the failure of sensory functions, active sleep, and the intra-uterine container.

Mancia (1989) refined his idea of the proto-mental nucleus by attributing the fetus' ability to process and integrate psychic and sensory stimuli and formulate internal representations to Daniel's Stern's (1985) concept of *amodal perception*. He referred to this as an innate property that allowed for integration and transformation of stimuli between senses. This capacity, coupled with the hedonic tone he believed already to be present in the fetus allowing it to make distinctions between pleasure and unpleasure, produced a link between primary perceptive and affective experience. He also believed that this process was best facilitated through active sleep. He stated, "Thus the phase of REM type sleep in the foetus seems to provide the best conditions for a perceptive integration to act as the basis of an 'amodal' function" (p. 1059). Because there is an affective component and distinctions of pleasure/unpleasure in utero, according to Mancia (1989) there must be traces of memory of these experiences in order to account for the continuum of pre and postnatal characteristics. He cited examples of children of musicians that have a greater familiarity with music at birth than do children born to non-musicians. He stated:

Thus: the state of REM sleep, the amodal perceptions, and the beginning of the functions of memory are all conditions which can contribute to the organisation of a protomental nucleus of activity whose task will be to transform the sensory stimuli the foetus receives from external objects into primitive representations or protorepresentations. (p. 1067)

Additional Theories of the Proto-Mental

Beebe and Lackmann (1994) discussed the prospect of self-regulation in the fetus and how it might prepare the newborn infant for life outside the womb. They noted Brazelton's (1992) demonstration that the fetus can:

...change his state, dampen his arousal, and eventually put himself to sleep to cope with aversive stimulation. When the stimulation becomes more moderate, the infant again changes state and shows patterns of information processing. Thus, even the fetus can regulate the level of arousal and responsivity as a function of the nature of the stimulation provided. (p. 183)

Kay (1984) acknowledged what is known regarding the fetus' capacities throughout gestation. Among the capacities discussed were the fetus' ability to move from approximately the 8th to 10th week, the fetus' ability to actively seek to avoid pressure from a microphone or knuckle on the mother's body in an attempt to find a new comfortable position, and also the fetus' ability to change ends in the uterus by 26 weeks. Overall, taking these abilities into consideration, Kay proposed a *rudimentary form of consciousness in utero*. He argued much like Mancina (1981) that during the later half of pregnancy rhythmical eye movements are believed to correspond to REM associated with dreaming. He suggested that this is evidence of processing in utero and argued that it supports the hypothesis of the existence of primitive fetal psychic activity.

Imbasciati (2004) attempted to explain the formation of memory and memory traces originating from early experiences of learning in expectant-mother/fetus communication through his own theory of the protomental. He argued that the primary relationship, that operates in the prenatal by way of mutual communication and learning

processes that occur through auditory, vestibular, tactile, gustatory, and olfactory channels, each having its own language, will lead to the establishment of protomental structures. He also argued that these structures will lead to what he calls *transgenerationality*.

Imbasciati's (2004) aim was to offer a theory that would allow for the contemplation of the mind at the fetal stage. The most important channels of communication available between the mother and fetus according to his theory are: 1) Biochemical (passing from the mother's metabolism via the placenta to the fetus); 2) Vestibular and auditory; 3) Olfactory – gustatory; and 4) Proprioceptive muscular and tactile. First there are engrams or memory traces that serve as recognition for the initial stimuli then over time these memory traces serve as communicational tools. Overall, the mother is believed to communicate via her body, movements, voice, and metabolites and the fetus' "mind" is modulated and protomental structures are developed.

Finally, Szejer (2005) also argued for the prominence of dreaming and memory in the processing of stimuli within the fetal gestation. She stated:

Beginning in the second half of pregnancy, the fetus dreams. We may even say that, for it, to memorize is to dream. It feeds its dreams with the information perceived during its rare waking hours, and its dreams serve in some sense to interpret these sensorial data, and to store them away at its own convenience. (p. 110)

She believes that this process marks the beginnings of intrauterine life.

Pre-Conceptions and Inchoate Alpha Function

Mancia's (1981) theory of the proto-mental nucleus included the fetal processing of external sensory and internal psychic stimuli that are read, decoded, and integrated to create internal representations that he compared to what Bion (1962) referred to as pre-conceptions. Bion explained his ideas regarding pre-conceptions in the following way:

“Thoughts” may be classified, according to the nature of their developmental history, as pre-conceptions, conceptions or thoughts, and finally concepts; concepts are named and therefore fixed conceptions or thoughts. The conception is initiated by the conjunction of a pre-conception with a realization. The pre-conception may be regarded as the analogue in psycho-analysis of Kant's concept of “empty thoughts.” Psycho-analytically the theory that the infant has an inborn disposition corresponding to an expectation of a breast may be used to supply a model. When the pre-conception is brought into contact with a realization that approximates to it, the mental outcome is a conception. Put in another way, the pre-conception (the inborn expectation of a breast, the a priori knowledge of a breast, the “empty thought”) when the infant is brought in contact with the breast itself, mates with awareness of the realization and is synchronous with the development of a conception. This model will serve for the theory that every junction of a pre-conception with its realization produces a conception. Conceptions therefore will be expected to be constantly conjoined with an emotional experience of satisfaction. (p. 306)

Mancia (1981; 1989) argued that the formation of the primary psychic skin led to a sense of space in the mind where pre-conceptions or internal representations were held.

Grotstein's (1978) seminal paper on inner space and dimensionality discussed the *baptism of space* that is based on the toleration of absence of the primary object and of the catastrophic anxiety experienced in the caesura or gap. Like Bion, Grotstein argued that space is required in the mind for thinking to occur. Without internal space there can be no maneuvering of thoughts and feelings which leads to psychosis. He stated, "Without separation in time and distance there can be no concept of psychic space and therefore no perception, and certainly no representation" (p. 56). In his early writings on the concept of the *Background Object of Primary Identification* Grotstein (1979) conceived of an initial relationship that occurred before the caesura of birth but that influenced all future relationships thereafter. He explained:

The first transaction is the relationship with the Background Object of Primary Identification. All further relationships are with the descendents of primary identification – those who are meaningful to us throughout our lives. The dreams constitute, I therefore believe, a residue of an umbilical connection with the Background Object and an umbilical shadow of connection to those who are chosen by us as worthy enough to occupy our mental lives today. (p. 161)

Grotstein (1980) also introduced his theory of the *dual track* in which he argued that the infant is born into a state of primitive, inchoate separation-individuation while at the same time experiencing a continued primary identification with the Background Object. He believed that the faculties required to construct such an experience were contingent upon the nurturing of the good enough mother. Not only does the mother's attention to the infant's needs help to establish an opportunity for the infant's sense of separateness but also a "continued umbilical bonding – the continuation of the phantasy

of primary identification” (p. 537). While his theory of separate and non-separate experience has been historically applied to the experience of the newborn, Grotstein (2008, personal communication) currently believes that this situation is true of the fetus prior to birth. His previous works foreshadowed this idea. Grotstein (1983) stated, “The fetus may very well be inside the mother’s abdomen, but that does not mean that the infant is ‘one’ with the mother once there is stimulation of the rudimentary sense organs...” (p. 42). Later, he stated, “Can we conceptualize a separate-mindedness for the infant from the beginning of extra-uterine life (if not before)” (p. 42)?

Grotstein (1980) discussed Bion’s (1962) concept of the container and the contained and the significant impact this theory had on conceptualizations of primitive mental states. He explained that because of Bion’s theory, “all mental life can be divided into a conception of the container and contained” (p. 485). Grotstein believed that the infant was born with *inchoate content* which are to be contained or detoxified and transformed by the maternal mind. He provided an invaluable analogy of the maternal container, likening it to a prism that refracts and sorts out *varying hues of the emotional color spectrum* so as to differentiate or alphabetize via alpha function the infant’s communications and to determine what requires attention and what does not. Grotstein argued that Bion’s concept of the container and the contained provided a model for the conception of mental life. In his book, *A Beam of Intense Darkness: Wilfred Bion’s Legacy to Psychoanalysis*, Grotstein (2007a) suggested that the infant is born with an *autochthonous alpha-function* similar to Chomsky’s (1957) inborn *transformational generative syntax* that allows the infant to communicate with a receiving auxiliary mind

through the use of a pre-lexical (sensory) language (p. 157). Later, Grotstein (2009b) elaborated on his idea:

Bion (1962a, 1962b) believed that the infant introjected his mother's "alpha-functioning" and that its product, alpha-elements, is necessary to maintain the "contact-barrier." While not discarding this idea, I suggest instead that the infant is born with his own inchoate "alpha-function" as a Kantian a priori primary category and that it is the parent's task to help foster its optimum development. (p. 56)

Grotstein (2009a, personal communication) explained that the fetus and the infant have a primitive mental processing that involves a connection with both an inherited or phylogenetic unconscious as well as a dynamic unconscious that begins with the first relational interactions. Pre-conceptions populate these levels of mind which perpetuate a search for the appropriate counterparts in reality at birth when the abrupt shift from a watery environment to a gaseous one stimulates the *sudden emergence of inherent pre-conceptions* (Grotstein, 2009b). Pre-conceptions can also be thought to motivate the infant's search for a receiver or container of its inchoate contents following the caesura of birth. Grotstein (1981a) explained that Bion believed that the infant was born into a psychic situation similar to the depressive position in which there is a "...sudden and frightening interface between the beta elements of reality which impinge upon the somatosensory awareness of external reality and, simultaneously, the intuitive arousal of preconceptions from the inner world of phylogenetic experience..." (p. 21). Bion also believed that inherent preconceptions were stimulated at three months gestation when the fetus experiences the first flashes of light on the optic pits. Much like Mancina and Tustin,

Grotstein (1981a) argued that all psychic experience originated with the confluence of external and internal stimuli from the very beginning of fetal psychic life.

Grotstein (1980) described primary process as akin to alpha function in which on the dual track of development, the non-separate track constitutes a continued sense of a “mystical umbilical connection in phantasy to the womb-mother” (p. 537). Grotstein (2007a) offered an imaginative conjecture regarding the primitive mental processing of fetal sensory and psychic experience. He explained:

...the embryo-fetus has the rudimentary capacity to register sensations and to originate responses to these sensory stimuli - as β -elements - which 1) might early on link up with their corresponding mental counterparts, the Ideal Forms (inherent pre-conceptions, “memoirs of the future”, noumena, things-in-themselves) to form primitive proto-conceptions in the form of inchoate sensory patterns awaiting birth and postnatal development for further processing; or 2) might remain dormant as β -elements and, if there is a failure to transform them into α -elements upon birth or after birth, become projected into the body self as somato-psychic debris. Put another way, the embryo-fetus may mentally function by transformations in hallucinosis (mainly visual and auditory). (p. 258)

Additional Theories of Inherent Capacities

Szejer (2005) also contemplated the inborn capacities of the infant that originated in the prenatal. Szejer utilized research from psycholinguistics to support her argument. She illustrated that children who were born profoundly deaf, whose parents were also deaf and therefore used sign language, have been shown to begin to babble with their hands before mastering sign language. Hand babbling in these infants represented more

than half the hand activity of the deaf children of these studies, while hearing children's hand gestures represented only ten percent. According to Szejer, this data tells us that newborns, hearing or deaf, are born with a rudimentary capacity to generate and to utilize language. They seem to speak before they know how to speak.

Szejer (2005) discussed a second aspect of fetal life that provided support for the existence of not only processing of stimuli in the womb but also direct communication. She reviewed the touch and voice therapy developed by Dutchman Frans Velman called Haptonomy. This form of therapy is used by parents in France to communicate with their child before and during birth. She explained that the fetus' auditory system does not come online until the third trimester. Well before that, the fetus is able to recognize and discriminate acoustic vibrations reverberating in the amniotic fluid. Haptotherapists suggest that the fetus hears through the skin. Haptotherapy has led to the discovery that every physical, affective, psychic, and emotional event experienced by the mother has immediate repercussions on the child's environment. The child will in turn react to what authentically concerns him. With the aid of the haptotherapist, the fetus learns to show, and the parents learn to decipher, pleasure or displeasure, desire for contact, or needs for rest or tranquility. She stated:

Not only is the child, beginning during intrauterine life, interested in the external world, not only does he react to familiar voices and move closer to them, but he makes his presence felt as a function of the affective context. (p. 75)

Ultimately, this approach conceives of the child as being in a quest for meaning and communication beginning with intrauterine life, and is utilized as a therapeutic means with a preventative aim.

Finally, Osterweil (2002) presented her hypothesis of early fetal object relations. She posited that the baby's first relationship is that which is established between the fetus and the interior of the mother's body. She believed that this first relationship serves as a forerunner or internal representation of all relationships established after birth. Osterweil's argument is based in neurobiology. She explained that the neocortex lies between early brain structures that have contact with the brainstem which has been considered to be amongst the oldest structures in the brain, possibly containing memory imprints, phylogenetic inheritance, or pre-conceptions. Osterweil believes that the umbilical cord, the amniotic fluid, and the placenta are the first introjects of the fetus. Since the umbilical cord and the placenta are replaced by the nipple after birth, both of these can be thought of as a pre-conception to the postnatal breast.

The Origins of the Unconscious

Mills (2002) discussed the *epigenesis of the unconscious mind* and the origins of *unconscious subjectivity* in intrauterine life. He suggested that the first glimmers of unconscious activity in the fetal mind, constitutes the first agency of the developing child. He refers to this as a necessary aspect of the mind, the part of the unconscious mind that is interested in the development of the subjective aspect of the organism's experience, as a rudimentary form of the ego. The ego's only aim in these early stages is to develop and prepare for life after birth.

Chuster (2010) conceived of the unconscious as *the most primitive mental state*. Chuster explained Bion's (1977) conjecture regarding the existence of an *inaccessible mental state* existing in a third realm, beyond the conscious and unconscious. He noted Bion as stating:

I can imagine that there may be ideas which cannot be more powerfully expressed because they are buried in the future which has not happened, or buried in the remote past in such a way that it can hardly be said to belong to what we call thought. (Bion, 1977, p. 44, as cited in Chuster, 2010)

Chuster argued that this would mean that the Freudian unconscious lives in something larger. This is what Bion referred to as O according to Chuster. He stated, “It is the *void of Being*, the infinitude behind all human existence, which causes the unconscious to be always in creation and in expansion, while, simultaneously, it has a conservative movement of repetition of forms” (p. 138). His aim in this paper was to try to describe the *original element of intuition* which he referred to as *radical imagination*. Preconceptions are thought to reside in this deepest aspect of the unconscious and he suggested that the first realizations of the embryonic mind originate here. Chuster talked about preconceptions as mechanism by which the fetus and the unconscious mind prepare for life in the future. He explained: “the mind of the fetus develops, expands, in the ‘prevision’ of having to cope with certain situations that will appear in the gaseous medium, but in a certain way have already arrived as *memory of the future*” (p. 140).

Chuster offered a science-fiction in which he attempted to apply his own radical imagination to the origins and evolution of the unconscious mind. He created a story of the evolution of mental space and possibly the origins of inchoate alpha-function. This story is based on the human beings’ reactions and adaptations to chaos and fear of predator. Overtime, with perpetual evolutionary advances and developments, human beings became more aware of the dangers in the world that threatened their existence, as well as the maneuvers that were devised to protect and to kill prey. This process of

adaptation could be akin to what Bion termed as alpha-function which originally laid the groundwork for an inchoate digestive system of biological and emotional happenings in the human being. There was a point when the human mind was borne out of a rapid and intense gain in autonomy of the Central Nervous System (CNS), according to Chuster's theory. The CNS became the master of the biological systems bringing about a new type of language that included dreams, deductive scientific systems, mathematical calculations, social institutions, laws and ethics. He thinks of these aspects of the mind as the *most ancient mental element* that make up preconceptions. Chuster argued that "after the preconception, the human being became, irreversibly, a mental being in all its implications" (p. 143).

There were also occurrences in the evolution of the human mind in which there was a shift within in order to cope with the resulting awareness that came with not only technological advances in primitive times but also psychological advances as well. Chuster hypothesizes that the human beings' increased awareness of predator and prey led to an intense sense of what could be thought of as a pre-conception to persecutory anxiety. The perpetual presence of a sense of fear became so intense that the human made internal maneuvers to reconcile their internal struggles. In the process, internal mental space gradually emerged as well as the death and life instincts according to Chuster (2010). The conflict that ensued between these two opposing forces led to an experience of what Bion (1962) called alpha and beta elements. Chuster placed the inaccessible aspects of the unconscious mind as descendants of catastrophic experience occurring over millions of years of the evolution of the human being. In essence, it

seems that this ancient sense of fear and anxiety is ancestor to pre-conception, phylogeny, and the formation of primitive forms of alpha-function.

Wild Thoughts and the Evolution of the Mind

Van Buren (2005) explored the evolution of the unconscious mind through the vertex of the development of left and right brain functions and the potential held within the human being. Drawing upon the work of Shlain (1998), Jaynes (1976), Bion (1962; 1967; 1997), and Grotstein (2000), Van Buren suggested that until the left brain developed, the right brain sphere of mental functioning dominated human experience. Shlain believed that until this time, literacy and abstract symbolic functioning were dormant inside the human only as potential. Because of this, according to Van Buren, the stories and earliest messages of the human experience could not be read or communicated. With the advent of the left brain, signs and symbols developed over time and evidence of the earliest tools appeared only as early as 30,000 B.C. (Shlain, 1998). Ancient caves in France and Spain displayed drawings and paintings that depicted hunting scenes, animal life, and the presence of bounty (Van Buren, 2002). But these paintings could also be understood as depicting an ancient myth regarding life that existed inside the labyrinth of the mother's body; the caves representing the labyrinth and the drawings representing images of life. Van Buren (2005) argued that the cave art depicted by these prehistoric peoples suggested a rudimentary reflective capacity in that they were displaying an ability to symbolize their situations and feelings for communication and reflection outside the mind. She used Grotstein's (2000) concept of autochthony, which is the infant's sense of a self-created reality in order to protect itself from feelings of helplessness (the infant believes, in essence, that it creates as it discovers

the world), to offer a perspective on the earliest experiences of humans as they dealt with their ever-evolving awareness of their internal dialogue and their surroundings.

Prior to dual hemispheric functioning, right brain functioning was associated with mother-infant communication and deep emotional experience. Right brain prevalence was reduced with the development of the left brain functions that included early formations of signs and symbols and linear consciousness leaving early forms of experience buried in a non-verbal prehistoric past. Van Buren (2005) explained:

I believe that signification processes originate in the prenatal experiences but also in the hard and soft wiring of the brain/mind. Millions of years of silence without the artifacts that indicate the qualities and shape of existence within the groups that occupied that time and place what we have called prehistory render interpretation of lived life impossible and leave us in the dark or exclude from our ancestors' feelings and thoughts. (p. 122)

She continued:

Prehistory leaves us in awe of what we are not told. Jaynes and Shlain suggest that we can infer backward how *Homo sapiens* put together their universe but very little about their feelings. Jaynes (1976) also proposes that humans did not move directly to intersubjective communication and language but instead heard right-brain messages inside their mind, much like an oracle, superego, and or dream voice. (p. 122)

Van Buren argued that while these ancient artifacts of experience and communication are rendered virtually inaccessible due to the ways in which our brains evolved, it could be possible to make contact with these aspects of the mind in actual exchanges, in life or in

psychoanalytic sessions, when one can feel the “heat of the emotions...when words fail or are not able to carry the innermost affects” (p. 125). Similar to Chuster’s (2010) idea of *radical imagination*, Van Buren (2005; 2010) employed Bion’s (1967; 1997) concepts of *O*, *thoughts without a thinker* and *wild thoughts* to argue for the existence of archaic messages that emanate from the vast depths of the infinite unconscious. According to Bion, these *vast wells of mental life* only become known through their transformations into phantasy, dreams, images, languages, and symbol systems (Van Buren, 2005). Van Buren (2010) explained that Bion “understood the unconscious as a container of great truths that often became stranded inside the deepest layers of mental life” (p. 114). She argued that *wild thoughts* are the messengers of these great truths from the depths of our unconscious minds that manifest as *thoughts without a thinker* that have yet to be *tainted with rationalizations against the truth* (Bion, 1997). She explained that Bion’s conceptualization of thoughts that precede thinking and require a thinking apparatus to think them revolutionized western thought. Bion believed that wild thoughts were innate and difficult to communicate with but could give birth to new material that had never been experienced, felt, or communicated. She explained:

To grasp the implications of the innate richness of thoughts without a thinker at the deepest levels of mental life challenges and rocks established beliefs, expressed in the sensual realm, seeing, hearing, and conscious cognitive symbols. The journey of thoughts without a thinker seems increasingly difficult as the complexity of the mind has unfolded and the distance between ordinary “O” and the new ways of surviving has increased. We might think that modern life has

increased our chances of survival but we also know of the experience of alienation from our emotional life. (p. 114)

Summary

Mancia (1981) suggested that there is a formation of a proto-mental nucleus that evolves through the coding and decoding of innate material emanating from the genes, the developing biology of the body, and emotional transmission from the mother via numerous channels of communication. These processes occur, according to Mancia, by way of active sleep, analogous to REM sleep in the adult, in which a sensory processing integration takes place leading to the formation of internal representations or pre-conceptions of life after birth. Grotstein (2007a; 2009) suggested that the birth of the infant gives way to an emergence of these inherent pre-conceptions which perpetuates a search for a receiver of inchoate contents that are in need of reverie, containment, and digestion. Hence, Grotstein argued that the infant is born with an inherent rudimentary alpha function that allows for a pre-lexical communication with the primary caregiver.

Chuster (2010) and Van Buren (2002; 2005; 2010) both suggested the existence of an inaccessible aspect of the mind that originated millions of years ago when the human being began to experience the evolution of internal experience and space. Chuster referred to this aspect as the radical imagination or the most primitive mental state in which the human being began its preparation for life in the future by engaging in not only technological advancement but also psychology. Van Buren argued that wild thoughts are the messengers of archaic right brain processes, experiences, and communications that occurred at a time when right brain functioning was dominant and left brain functioning had yet to evolve. These processes re-emerge in the prenatal as signification

processes begin to mix with pre-conceptions and the bombardment of stimuli in the intrauterine experience. An overview of the sources that were analyzed in this section are presented in Appendix G.

The Experience of Pressure and Prenatal Transferences

A sixth core category related to the fetal experiences of pressure and resulting prenatal transferences in psychoanalytic treatment was also identified. The grounded theory that was generated in this section is comprised of these concepts: Paul's (1976) discussion of the unconscious archaic uses of words; Paul's (1981) theory of coordinates of mental location and his concept of the placental object; Paul's (1997b) concept of the penitential transference; and Paul's (1997c) discussions of mental pain associated with the experience of pressure.

Paul's Development of Psychoanalytic Tools

Paul (1997a), in the introduction to his book, *Before We Were Young: An Exploration of Primordial States of Mind*, laid out the logic for his explorations into primitive mental states that included embryologic and fetal states of mind. Paul explained his interest with engaging in and making use of direct observation in psychoanalysis in which the process could be compared to undergoing a surgical procedure in which the analyst is the surgeon and the patient is the assistant and the anesthesiologist. Paul drew upon Bion's suggestion that the psychoanalyst must develop an understanding for a mental coordinate system. In this process, Paul explained that his goal has been to develop a set of tools, an operative procedure, and a tentative map of the terrain of the psyche that could be used as a reference point from which to begin when investigating the individuality of each of his patients. His interests revolved around prenatal influences on the mental processes of adults. He believes that mental transmission between mother and fetus is translated through pressure and his work has reflected his attempts to understand why some patients seem to continue to struggle with

these pressures experienced throughout gestation and the birth process (Paul, 2010, personal communication). Paul's endeavors have concentrated on the presentation and mental experience of a specific type of patient, one that seems to have "hermetically sealed" themselves from all outside stimuli in an attempt to create and maintain a womb-like existence safe from the outside world, and safe from psychological birth. Paul (1997a) described this type of patient as follows:

We are all familiar with individuals who live with the expectation of having no pain or stress and feel that everything should be done for them. There should be no gaps between expectation and fulfillment. Even fulfillment is a problem since there never should have been need to require fulfillment. There is no concept of development of capacities or any form of process which involves incremental change. Any form of change is hated and evokes dread or terror. In extreme situations, one finds them isolating themselves with the blinds drawn, shut up in their rooms, refusing contact. (p. 25)

Paul (1997a) explained that the expectation of these patients is "as it was in the beginning, so shall it be forever" (p. 25). Paul (1997a) provided a list of experiences and phenomena that he believed were related to a prenatal level of mind. These were:

1. The experience of pressure.
2. Pressured lifestyle.
3. A sense of infinite vs. finite time.
4. The sense of dread.
5. The sense of strangeness.
6. Either/or versus *and* thinking.

7. Fear of mutilation
 - a. Psychosomatic expressions of muscular dystonia.
8. Dread associated with psychic movement.
9. Agoraphobia.
10. The phenotype of greed.
11. A sense of foreknowledge or a sense of prescience and its effect on decision making.
12. The moralization of phenomenology.
13. Inability to make a selection based on desire.
14. Anhedonia and the driven lifestyle.
15. Beating fantasies and elements of sadomasochism.
16. Voluptuousness and character traits as Piontelli has demonstrated ultrasonographically.
17. Obsessional thought as a means of stopping psychic movement and as a process by which the rhythmic elements of labor contradiction and delivery are evidenced expressed in “verbal banging.”
18. Mental turbulence.
19. A penitential life representing elements of formation of the primordial superego. (p. 24-25)

Paul explained that while he was not diminishing the importance or existence of postnatal experiences, he expressed his belief that postnatal experiences are nourished or activated by fetal levels of mind.

Unconscious Archaic Uses of Words

Paul and Carson (1976) presented a theory with regard to the utilization of certain words that were believed to represent mental coordinates related to a patient's emergence from psychic fusion or projective identification. These words, Dumb, Stupid, Weird, and Strange (to be discussed in detail in a later section) were thought to indicate the degree to which a patient, usually in the Borderline or ambulatory Schizophrenic realm, is involved in an *inside* or *outside* state of mind, that is to say whether there is an unconscious phantasy involved that is characterized by the creation of a womb-like experience. Paul (2010, personal communication) explained that this theory came from years of clinical work with patients who for example, would use the word *dumb* or *stupid* in a seemingly harsh or moralistic sense to describe a behavior or situation in their life. The contrasting variable of these patients was that they were often very intelligent or gifted people and the use of these words seemed to be bizarre or out of context for the person's life. Paul stated that he would introduce the possibility that instead of these experiences being interpreted in such a harsh tone, that perhaps it could be said that they were in a *stupor* in that particular situation in which they felt numb, drugged, or had lost contact with themselves.

Paul (1997a) explained that he was shocked when on further inquiry he discovered that the use of the *Oxford English Dictionary's* historical explanations and definitions of these words provided him with a new psychoanalytic tool to understand the experience of his patients. He realized that there were situations in which patients seemed to utilize certain words in the more primitive forms and meanings when communicating unconscious phantasy. Where the usage of certain words in common

parlance would have a meaning that did not offer much information regarding the patient's experience, the 12th or 14th century usage of the word would fit more in the context in which it was being used. He concluded that the unconscious might be using the word in a primitive form in order to convey a particular message (Paul, 2010, personal communication). For example, Paul and Carson (1976) reported that the middle English definition of the word *strange* means: "that which is without, extra, on the outside, foreign, alien not previously known, seen, heard, experienced or unfamiliar" (p. 436). The word *weird* comes from the future tense of the German word *warden* or the old English word *wyrd* which refers to, "that which is about to occur, that which is prophesied, uncanny, but also refers to foggy, misty and definitely seems to represent a distinct distant state of mind" (p. 436). In Paul and Carson's theory, the usage of the word *weird* would indicate a mental coordinate analogous to the birth canal in the birth process, or the beginning of an awareness of something that is separate or not familiar. This would be akin to a patient that is beginning to emerge from an inside state of mind, or psychic fusion, to the outside where the sense of awe or strangeness might prevail because of a new awareness of something foreign or unfamiliar. This also would be akin to the fetuses experience as it emerges from the intrauterine world, through the birth canal, into the outside postnatal world. Paul and Carson (1976) cited two of Freud's arguments regarding the shift of meanings of words from current usage to more archaic forms to support their argument:

- 1) Thus in following the usage of language, neurosis, here as elsewhere, is taking words in their original, significant sense, and where it appears to be using a

word figuratively it is usually simply restoring its old meaning. (Freud, 1908, p. 174)

- 2) The course of linguistic evolution has made things very easy for dreams. For language has a whole number of words at its command which originally had a pictorial or concrete significance, but are used to-day in a colourless and abstract sense. All that the dream need do is give these words their former, full meaning or to go back a little way to an earlier phase in their development. (Freud, 1900 p. 407)

Paul's Mental Atlas of Psychological Birth

Paul's (1981) paper on *A Mental Atlas of the Process of Psychological Birth* provided a framework from which to begin investigations into prenatal phenomena such as phantasy, the experience of pressure, and the experience of the birth process. Bion had contemplated the early experience of pressure on the optic pits as early as three months gestation and the resulting psychic activity that ensued. Paul agreed with Bion's imaginative conjectures and science fictions related to vestiges of fetal states of mind that could have various degrees of expressivity in postnatal life. Paul (1997a) argued that postnatal experiences are often activated by prenatal memories that reside in archaic levels of the mind.

Paul (1981) attempted to map out the trajectory and experience of psychological birth as it could be experienced by the fetus moving through the birth process. He utilized his experience in clinical situations to construct a model for understanding massive projective identification processes in which he believed that the experience of psychological birth is coupled with what seems to be severe mental pain. To explain this

phenomenon, Paul discussed obsessional types of patients that seem to be caught in a cyclic quality of thinking that can have no forward motion or train of thought. He described a sense of these patients having their cyclic thoughts think them instead of the other way around. He used the example of drug abuse or addiction in which the patient desperately employs any means necessary to keep from being taken over by these intrusive and often painful states of mind. These states are often characterized by intense anxiety, agitation, and insomnia. Paul believed that these experiences are the result of the experience of prenatal pressure and a resulting archaic inchoate primitive super ego that develops.

The Placental Object

Paul (1981) also introduced his concept of the *placental object* in which any and all needs of the patient are required to be reckoned with and satisfied by the analyst. These phenomena could be characterized by an inside state of mind in which the unconscious phantasy associated can be linked to a feeling of residing inside mother's body as opposed to a feeling of emerging from projective identification and living on the outside in the external world. This experience could be thought of as being related to when the birth process is initiated and the fetus abruptly moves from a watery to a gaseous medium. Paul explained:

With the birth process in physical form, the blood flow is cut off from the mother and the fetus must undergo a rapid shift from a gill-like form of respiration to the use of the lungs. The external fluid pressure on the skin is suddenly reduced and the organs of sensation from the skin to olfaction, vision, and hearing must undergo a fundamental change in the threshold of stimulation. The fetus as it is

born is suddenly subjected to intensities of sound, light, temperature, and touch, which is entirely different from its intrauterine experience (p. 561)

The process of birth seems to be filled with not only intense sensations of pressure and sudden intense awareness of changes in bodily experience but also the potential for pain. Paul argued that this experience could be related to the formation of a primitive archaic super ego; one that is believed to cause the sense of pressure and psychic pain in postnatal life. Paul transformed the biological experience of birth into a model for psychological birth and psychological pain. According to Paul (1981), any psychological movement toward psychological birth, or the experience of moving from an inside state of mind to the outside, will be accompanied by intense mental pain because the pressure and pain experienced during birth is associated with emergence from psychic fusion or psychological birth.

In the placental-object transference, the patient requires that all needs be perpetually met; even the experience of having a need is resented. The patient is in need of nurturing at all times and pressure is applied to the analyst to attend to these needs. Paul (2010, personal communication) explained that these patients create a closed system in which they are unaware of either good or bad elements entering into the interaction with the analyst. It is much like the fetus' experience of the placenta in which the good and bad elements move in and out through the umbilicus without any register in the fetus' awareness. The pressure that is projected is similar to the pressure experienced by the fetus in utero just prior to birth and this experience of pressure shows up in postnatal phantasy. Paul (1981) reviewed Melanie Klein's (1975) theories regarding the infant's two main *phantasied onslaughts* on the mother to support his argument. First, she

discussed the infant's impulse to suck dry, bite up, scoop out and rob the mother's body of its good content. Second, she conceived of an anal/urethral impulse by the infant to expel excrements out of the self and into the mother. Klein believed that these substances were bad parts of the self that were projected out into the mother and were meant to both injure the maternal object as well as take control of it. Paul argued that perhaps these maneuvers by the infant to forcefully gain the goodness held within the mother's body as well as to locate expelled waste in her could be an "attempt to maintain a functioning placenta as a primary expectation which has never been worked through. In the uterine state, there is no oral feeding or anal excretion as all of these functions are perfectly handled by the placenta as intermediary between the mother and the foetus" (p. 563). In drug addiction, according to Paul, the drug is experienced as putting one in touch with the experience of intrauterine life inside mother's body. Regardless of the drug that is utilized, the aim is to decrease catastrophic anxiety and the experience of mental pain involved with psychological birth and the birth symptoms of pressure. While the drug can reduce the anxiety considerably the desired effect is one of a feeling of having something inside that is manageable and under the addict's control.

Penitential State of Mind

Paul (1997b) introduced his concept of the *penitential transference* that can be characterized by obsessional states of mind and is organized by propaganda from the primitive super ego developed during the birth process. These patients live a life of joylessness, isolation, and depression. Within the isolation there is severe mental torture and painful feeling states. There are also cruel thoughts and voices that convince the patient that they deserve *punishment for unknown crimes*. The resulting internal situation

is felt to be penitential in which phantasies of *imprisonment, solitary confinement, hard labor, and torture* prevail. These experiences can be thought to originate in the inchoate pre-birth and birth experience harsh super ego which could provide a clinical marker of distinction between the physical birth process and the birth of the character or personality of the individual. Paul based his argument on Freud's (1920) formulation of sadism and Klein's (1929; 1932) discussion of the infant's sense of guilt and subsequent phantasies of punishment. Drawing upon Bion's (1980) imaginative conjectures regarding the origins of mental pain in the embryo, Paul (1997b) explained the developmental process of his theory. He stated:

Internal movement of cell layer upon cell layer from morula through gastrula, embryo and fetus is registered but not integrated. This vast array of experience communicates with the uterine environment and the "mind" of the mother until the instigation of the process of fetal engagement and onset of labor. Then, the communication rapidly changes, effecting a barrier between the phase prior to labor and afterward. The volume and intensity of the experience of labor contribute to the overwhelming input to the fetal mind (crushing, pounding, etc.) which also cannot be contained or integrated. This forms the thrust of what Mrs. Klein called the death instinct or proto-aggressive drive and has to do with a primordial sense of overwhelming pain-to-extinction which the baby communicates in its scream to the mother postnatally. This externalization and/or projection of the death instinct-into-the-breast as Klein's formulation shows is the transformative version of object relations in their primitive postnatal state. This is what I think is meant by sadism and is what forms the beginnings of love. In this

formulation, “hate” is the primitive form of love, and is a direct function of pain. Primordial pain without integration is overwhelming but is made tolerable by an affective communication link (Bion, 1962). (p. 86)

In patients that have experienced a lack of this affective link mentioned above, Paul (1997b) proposed a *primitive moralistic boundary* that exists in borderline, obsessional, and psychotic patients that is a significant characteristic of the penitential state of mind. Paul believes that mental pain originates and can be registered in the embryo and then the fetus, but is unable to be completely integrated. Labor compresses the overwhelming mental pain experienced as pressure on the fetal mind. This intense pressure could give rise to the death instinct which the infant communicates in its primal screams at birth.

Phenomenology of Mental Pressure

Subsequent mental pressure is then associated with an *in-out axis* in which the inside states of mind are characterized by an absence of an “and” logic and instead only an “or” logic is possible which is a one track and one dimensional experience (Paul, 1997c). Emergence from the *inside* state of mind to an *outside* state will be coupled with mounting pressure and psychic pain. Paul (1997c) also recognizes the possibility of an addiction to pressure and the need for it to feel as if one can continue functioning. In essence, the pressure is felt to be a presence or an accompaniment to the patient in everyday life. Paul suggested that these experiences can manifest in a state of procrastination or induced through self-attack.

Procrastination could be seen as a result of prenatal pressure that has escaped containment following birth. This mental state can lead to elevated mental pressure on

the psychic apparatus and ultimately renders certain tasks obligatory. Paul asked, “Can this be a vestige of the initiation of action by the uterine pressure on a fetal body as propulsive force?” (p. 121). The hallmark of procrastination is a sensation of being constantly under and surrounded by pressure. This could be a state that is recalled from a prenatal memory of birth in which the actual act of psychological birth is intended to be avoided at all costs. Paul described this state as an attempt to hide what he termed *undercapitalization* or the lack of having planned adequately to *capitalize* on experience.

Through self-attack, pressure can also be induced. Paul described a patient that would frequently engage in bouts of self attack that would lead to a spiral of cruelty and moralistic judgment applied to the self. He explained:

A typical pattern in a 35-year-old male patient involves initial attacks on the self, “it was not any good anyway”; secondly, a repetition in greater degrees of self-attack quite out of proportion to reality; thirdly, the continued chipping away by the cruel conscience eventuating in gradual discouragement and demoralization. Subsequently, there is erosion of thinking capacity and inability to utilize effective judgment. By then there is unopposed takeover by the cruel conscience and/or psychotic part of the personality with frequent violence or impulsion to hostile action. Continuous breakdown follows. (p. 123)

Summary

Overall, Paul’s work has concentrated on the formation of the archaic primitive super ego in which the experience of pressure is the key component. In Paul’s theories there is a massive onslaught of pressure that begins with the embryo but is compressed to intense forms at the initiation of the birth process. The fetus experiences catastrophic

changes to the biological and psychological systems as the transformation from a watery medium to a gaseous one takes place in the senses. A failure of adequate containment of this experience of pressure, prior to and following birth, can lead to an unconscious re-experiencing in the postnatal, and even in adulthood, where a phantasy of returning to the safety of the maternal intrauterine world is perpetuated; where there is an absence of a sense of separateness or the possibility of otherness. In psychoanalytic treatments this can lead to intense prenatal transferences in which the analyst can be treated as a placental object, required to attend to any and all needs and to manage massive projective identifications coming from the patient. The patient aims to either rob the analyst of all good contents or to injure and control the analyst via phantasied evacuative projections of excremental qualities and contents. Paul argued that this experience can be the result of a penitential mind set in which the harsh inchoate super ego holds the patient hostage causing them to pay for crimes they did not commit and convincing them to lead a life of intense mental pressure, torture, and isolation. Emergence from this penitential transference could lead to a gradual tolerance of an outside state of mind where the pain of psychological birth and separateness is managed and the patient is released from the use of massive projective identification as their only form of communication of psychic pain. An overview of the sources that were analyzed in this section is presented in Appendix H.

Prenatal Psychic Experience and Possible Applications to Psychoanalytic Treatment

A final category was produced with regard to possible applications to psychoanalytic treatment. This section is comprised of these topics: criterion for utilization of prenatal material in psychoanalysis; indicators for treatment based on the mother's experience as well as the fetus'; unconscious phantasy of young children regarding intrauterine life during psychoanalytic treatment; the formation of primary psychic skin, the experience of pressure; the total personality and sub-thalamic fear; regression to *umbilical womb-service*; working with primitive wave-bands of experience; and Bion's (1977) suggestions for psychoanalysts investigating the caesura.

Criterion for Reconstruction of Prenatal Material in Psychoanalysis

Ploye (1973) was amongst the pioneers in psychoanalysis to ask the question: "Does prenatal mental life exist?" While Ploye did not attempt to answer this question outright, he did offer parameters for psychoanalytic researchers to consider when investigating this area. He acknowledged that the word blissful has been often utilized to describe the experience of the fetus throughout gestation. Because of this assumption, Ploye recognized that the idea of good memories being retrieved from prenatal life has always been accepted in psychoanalysis. In contrast, the experience of bad memories being retrieved has rarely been investigated or even mentioned.

Ploye (1973) asked two more pertinent questions with regard to prenatal psychic life and the possibility of reconstruction of these experiences in psychoanalytic treatment. First he wondered if *foetal levels* of mind can actually play a part in later development. Second, he asked if these primitive levels of mind could be presented by a patient in psychoanalysis in the form of transference and be amenable to interpretation. Ploye

argued that in his own view, "...if it exists at all the 'language' of prenatality should be just as easy to decipher as the languages of birth, orality, anality etc..." (p. 242). With this in mind, Ploye offered four criteria to draw from when considering the utility of prenatal material in psychoanalysis. He stated:

To be deemed valid, a reconstruction in analysis must usually satisfy one or more of the following criteria:

1. It should make sense of and bring together in coherent fashion the greatest possible number of isolated data, which taken individually appear to have little meaning. One could call this the criterion of plausibility.
2. It should release new and significant material, and above all material which in unconscious form conveys back to the analyst a message that he is on the right track. One could call this the psychoanalytic criterion, one which relies on obtaining an 'echo' back from the unconscious.
3. It should if possible release either immediate or later historical confirmation of the reconstructed fact or event (historical or anamnestic criterion).
4. It should preferably lead to a therapeutic result, and one that can convincingly be attributed to the reconstruction or at least to the work it has made possible later (therapeutic criterion). (p. 242)

Ploye (1973) warned that with prenatal reconstruction, one should be cautious because the early forms of this type of research will be on speculative ground. He suggested that perhaps it would be best to focus on the historical and anamnestic criterion to initially determine whether a prenatal reconstruction could be considered valid and suggestive of early imprints occurring on the mind during gestation. A second recommendation

offered by Ploye was that it would be preferable for such research to be carried out by child analysts or psychotherapists since they would have the most access to early imprints of this type during the course of a child treatment. The child analytic situation could also provide more prospects for validation as parents or caregivers might be available for questioning regarding these issues. Hospital records might also be available for verification.

Finally, Ploye (2006) discussed the problem of communication of prenatal findings with patients in psychoanalysis. He stressed that while we may be involved in the psychoanalytic investigation of prenatal lines of experience in the patient and at times might even make educated guesses with regard to the emergence of these archaic levels of mind in the transference, the key issue is whether our communications can be made in such a way that the patient will feel helped or find meaning in our interpretation. He said that patients might often respond to these interpretations with phrases such as, “But how does this help me?”, “What shall I do with it?”, or “It doesn’t get me anywhere” (p. 2). One way Ploye suggested to deal with this dilemma is to consider whether there could also be an interpretation that could be made with regard to postnatal life in addition to the prenatal. If this is the case, Ploye suggested that this interpretation be made first. He stated:

...even when the particular wording of a patient’s communication appears to call for an interpretation on prenatal lines, a little more reflection will nearly always show that an interpretation on postnatal lines would also have been possible and would also have made more sense to the patient, and that, from a *therapeutic* point of view, it would really be more helpful to offer the ‘postnatal’

interpretation first, the question of whether to complement it with the 'prenatal' one, either at the time or later, being for the therapist to decide. (p. 2)

Indicators for Treatment in the Mother and the Fetus

Brief psychotherapy for pregnant mothers. In her paper regarding the maternal womb as *procreative container* Raphael-Leff (1996) discussed the general anxieties pregnant mothers throughout the world have reported especially as it relates to their own influence on the fetus' gestation and the intrauterine environment. Raphael-Leff acknowledged the many medical studies that have shown the permeability in the womb to:

environmental toxins and technological toxins and technological hazards, to pathogenic effects of nicotine and alcohol intake, to viral infections, and indeed, to maternal emotional states transmitted to the fetus through heart rate acceleration, antibody formation, hormonal, vestibular, and temperature variation. (p. 377)

Raphael-Leff (1996) explained the precarious effects that the state of pregnancy can have on the maternal mind. Her argument is that primitive phantasies can be evoked by the experience of pregnancy and that these phantasies could have an impact on the intrauterine environment. She stated:

Powerful forces released by pregnancy create emotional turbulence taking the woman by surprise and necessitating greater receptivity, constant reappraisal or intensification of defenses. The bizarre experience of dual unity often reactivates primitive fantasies about the inside of the maternal body as it triggers triple identification (of fetus, mother, and baby self), with attendant ideas of merger,

exploitation, imprisonment, violation, and contamination. These fantasies, accompanied by damaging and reparative urges, may induce anxiety states, panic, phobic reactions, yearnings, idealization, and heightened preoccupations with the archaic mother of her own gestation, birth and infancy add to the turbulence. (p. 379-380)

Raphael-Leff (1982) made an argument for brief psychotherapy during pregnancy to address the needs of a pregnant mother. She understood pregnancy to be a preparation for motherhood and identified 3 major psychological factors that must be achieved in order to avoid distortions in post-natal mother-infant interaction. These achievements were described as emotional fusion with the fetus early in pregnancy, followed by gradual differentiation, leading to progressive psychic separation of baby and mother that culminates in physical separation at birth. In her argument of brief pregnancy psychotherapy, Raphael-Leff suggested four possible needs of expectant mothers that could be attended to during treatment. These included:

1. Over-valued pregnancies: repeated miscarriage, sterility, previous stillbirth, prenatal death, or pseudocyesis.
2. Ambivalent pregnancies: those unwanted or occurring in adolescence or for the first time after 23; feminine revolt; lack of support.
3. Life events: accidents, serious family illness, bereavement, divorce, eviction, redundancy, emigration.
4. Historical sensitization: mother's death in childbirth, sibling's abnormality or still birth, subject's having been adopted or born posthumously, eating disturbances.

(p. 13)

Pregnancy psychotherapy. Apprey (1987) argued that maternal projective identification leading to intense maternal misperception regarding the fetus can perpetuate a crisis during pregnancy that could be alleviated through the use of *pregnancy psychotherapy*. He defined projective identification as a defense that could be employed as a result of regression in the third trimester of pregnancy. In response to excessive persecutory anxiety, envy, or intolerance of separation, disturbed or vulnerable mothers might destructively inject their baby with aspects of their own history and internal world which leaves the baby with a feeling of having been forcefully entered by something from the outside.

Apprey reported an unpublished study (Nover, 1983) in which mothers were observed to be less socially interactive with their babies and emotionally available when 1) they had a distorted perception of them; 2) they thought their babies' behavior abnormal; and 3) the mother's scored high on overall anxiety, lower on contingent responsiveness, and higher on frequency of misperception. Apprey argued that these misperceptions could be considered as the primary content of maternal projective identification and believed that these misperceptions could be expected to change through intervention. In effect, the projections would be changed from destructive and defensive to being empathetic and exploratory which could lead to adaptive interaction between mother and fetus and help aid in the child's development.

Apprey (1987) also considered the risk of crisis in pregnancy. He suggested that while a woman has an opportunity to progress developmentally during her pregnancy, she is more likely to regress. In light of his focus on projective identification in pregnancy, Apprey reported his longitudinal study in which 48 childbearing women

where followed from their third trimester of pregnancy through to four years following delivery. These women were interviewed through structured and semi-structured questions in an attempt to observe empirically projective identifications they had with their children. Apprey reported that as the program unfolded, a sequence began to emerge that displayed changes in the mothers' reactions to their children. These were:

- 1) *The gathering of projective identifications:* Prenatal observations disclosed much about its nature and motivation.
- 2) *The emergence of components of projective identification:* After the birth the components of projective identification including projection, displacement, identification, and other forms of delegation began to emerge.
- 3) *The return/retrival/reowning of projective identification:* When her child was about a year old the typical mother began *retrieving* delegations hitherto exteriorized and located in the child.
- 4) *The emergence of empathetic projective identification:* With intervention the mothers began to transform massive, intrusive, or destructive projective identification into an empathetic form useful for exploring and serving their children's developmental needs. (p. 11)

According to Apprey, these four phases were related to physical changes in the mother. During the third trimester, the mother's physical symbiosis with her baby mirrored her emotional identification with her child, which mirrored her identification with her own mother. Apprey explained, "This three-way interaction between the phantasied infant, the new mother and her mother, along with physical stress, brings considerable regression, and even in clinical intervention research treatment promotes more

(therapeutic) regression” (p. 11). Following child birth, the mother begins to reduce her uses of primitive defense due to the physical separation from the child. As the child grows closer to one year of age, she must employ parenting strategies that can meet the ever-evolving needs of her child. Upon successful implementation of her parenting strategies, the mother begins to feel a mature sense of herself and to re-own her original projective identifications. Apprey concluded that pregnancy psychotherapy should focus on preventing pathogenesis or the reduction of risk factors in pregnancy that could lead to maternal misperception of her child.

Disorganized attachment. Thomson (2007) discussed prenatal stress and gestational dysregulation and determined that both can have detrimental effects on the fetus’ formation of self-regulatory processes. She noted previous studies that showed how stress states in the fetus and neonate are indicated by elevated heart rate, greater activity levels (i.e. gross body, single and multiple limb actions), greater physiological reactivity, and lower habituation yet higher reflex activation, pronounced stilling, mistimed diffuse movement, overt grimacing and indeterminate sleep-wake states (Field et al., 2006; Hesse & Main, 2006; for a complete review of developmental research pertaining to this topic see the chapter on “Mother’s Mind”). This would be indicative of disorganized attachment if these behaviors occurred in reaction to a primary caregiver. Thomson suggested that these findings with regard to fetal reactions to stress might indicate a precursor to disorganized attachment.

Psychotherapy as prevention. Finally, Bergner, Monk, and Werner (2008) argued that psychotherapy during pregnancy should be thought of a preventative intervention and Goldberger (1991) argued that psychoanalysis during pregnancy could be useful

because the fetus becomes a transference object that is actually present in the treatment and the transference to the analyst will often be used to express conflicts related to the pregnant mother's own mother. Overall, Bergner, Monk, and Werner argued that psychoanalytic treatment would be most useful for pregnant mothers because:

When a woman is engaged in her own unconscious fantasizing about the insides of her body, she comes into greater contact with a fetus – a part of her body initially experienced as both me and not me, body, and other matter...Treatment allows for recognition, reclaiming, and reintegration of split-off images and fantasies of self and other, particularly maternal representations, with which the woman-becoming-mother and the fetus are for a time imbued. (p. 413)

Unconscious Phantasy of Intrauterine Life

In her psychoanalytic treatments with young children, Piontelli (1987) frequently observed children engaged in concrete phantasies on life before birth. In the children that were more withdrawn and regressed, she noticed that this condition seemed to be well beyond phantasy where there was a constant living and reliving in their intrauterine past as a permanent mode of being. Even in her adult patients, Piontelli (1992) noted “some of my most ‘regressed’ patients seemed to live as if they were still in an unborn state, closed inside a ‘mental womb’ which rendered them almost totally impervious to life in the outside world” (p. 5). A particular adult patient she referred to as “the big fetus” would often talk about his phantasy and intention to enter inside her with all of his body. His intentions were serious enough that she felt it necessary to have someone nearby outside the consulting room in case he chose to act on his phantasy. It was this patient,

along with her observations of her child patients that Piontelli began to wonder about the emotional life of the fetus (Piontelli, 1992).

Amongst the many interests that developed while Piontelli studied prenatal life was the issue of psychological birth. Through her longitudinal ultrasonic observations of fetuses and subsequent observations of neonates, Piontelli began to realize that a child's emotional development was not commensurate with their physical development.

Piontelli (1988) defined psychological birth as a child's capacity to live mentally and emotionally in the outside world, outside the confines of the mother's womb. Some children, and adults, seem to be caught inside the womb, unwilling or unready to leave, mentally or physically, the insides of the mother's body. Piontelli (1989) concluded that psychological birth was a highly individual matter. She explained:

Depending on the basic temperament of the child and to the external circumstances of the pre and postnatal period, psychological birth can take place at various stages in development. In some cases, even before birth, and in others, not even until death. Some seem to be ready, even inviting of the caesura of birth, while others seem to dread it. (p. 424)

She later noticed in her child cases that some children were unable to leave their prenatal past behind them. They seemed to be obsessed with recreating a weird rendition of their fetal past being perpetually engaged in attempts to make their outside experience in the postnatal fit their inside, pre-caesural experience (Piontelli, 1993).

Piontelli (1988) presented clinical material of a 2-year-old psychotic girl that she believed convincingly linked her patient's postnatal struggles to her time inside the womb and her traumatic birth. Vera was 2 years and 3 months old when she began analysis

with Piontelli. Her parents reported that Vera was abnormally very still throughout her gestation. A previous child of these parents had been very active from the fifth month of pregnancy on but this mother was only aware of Vera's silence when her fifth month in the womb had arrived. Upon meeting her, Piontelli noticed a lack of motility in this child as she was unable to walk and was only able to crawl around like a lizard or a snake. It was reported that Vera's birth had been traumatic as she was born with the umbilical cord wrapped around her neck. Speculations had been made as to whether Vera's stillness was related to her own intentional entanglement with the umbilicus in order to feel something close and safe, or whether it was due to an inadvertent entanglement that left her feeling that stillness was required in order to avoid being choked to death. But Vera's mother's recurrent nightmares perhaps provided some insight into this dilemma. According to Piontelli, the mother reported often dreaming throughout the pregnancy that her unborn daughter was being strangled by the umbilical cord. The mother reported being obsessed with this recurrent nightmare.

Vera was initially unresponsive to Piontelli's interactions. She was isolative and withdrawn. She also interestingly showed up everyday with a thick chain tightly knotted around her neck, something her mother said Vera could not live without. Throughout the analysis, Vera would use other rope-like objects to wrap around her neck when the chain was not available. She also often involved herself in finding creative ways to hide herself away or to create a boundary or screen between herself and the rest of the room (i.e. lying inside boxes or hiding behind curtains). When Vera and her mother showed up early for her session, Vera would immediately turn all the lights off in the waiting room and crawl inside a small place somewhere in the corner of the room while she waited, all the while

having a thick chain wrapped around her neck. When it was time to enter the consulting room, Vera would force her way in, even before Piontelli had the chance to completely open the door, and Vera would often push her head violently between her analyst's legs and scream "open" or "I want to get inside." Piontelli (1988) explained that she was often struck by Vera's need to seemingly re-live the imprisonment and entanglement that she experienced inside her mother's womb. She concluded that this child was often engaged in repetitive behaviors that were utilized not only to show her previous prenatal struggle but also to ward off any possibility of having to re-experience the trauma of her birth.

Finally, in a postscript to Piontelli's (1992) book regarding her many ultrasound observations of fetuses and subsequent neonatal observations, she noted that while children tend to engage in direct phantasy regarding their prenatal existence, these phantasies also tend to diminish over time. In all the children she observed and/or worked with psychoanalytically, it seemed to her that by the ages of four or five, their preoccupations with memories of their prenatal past evolved into phantasies that seemed to be intertwined with postnatal experience. She argued that while the phantasies of the womb did not disappear, they did seem to lose their "factual" color as verified by her ultrasound observations.

The Formation of Psychic Skin and Psychoanalytic Treatment

Bick (1968) discussed the perpetuation of unintegrated states of experience as the result of a faulty formation of a psychic skin. The psychic skin, or primary skin, is first experienced by the baby's actual skin but is then reinforced over time through introjection of a primary containing object that is felt to help hold the internal contents of

the primitive personality together. As the primary skin is reinforced, the baby begins to develop an experience of internal psychic space and external physical space. When this experience is absent or lacking, Bick suggested that unintegrated states will continue and manifest in symptoms such as trembling, sneezing, and disorganized movements. Continued experiences of unintegration will lead to a formation of a second skin where dependence on the primal object is replaced by a pseudo-independence which can manifest in types of *muscular shells* or *verbal muscularity*.

Bick (1968) reported an infant observation in which she witnessed a mother-infant dyad move from severe unintegration where a young mother's only interaction with her child was to provoke her into aggressive and agitated states, to more integrative capacities and then back to unintegration. She explained that as this immature mother began to tolerate closeness with her baby within the first twelve postnatal weeks, the *skin container* gradually improved allowing the baby to begin to present less and less with symptoms of unintegration. But a move to a new home that was in an unfinished condition caused the mother to develop her own bouts of severe stress which led to a withdrawal from her baby which brought on "a flood of somatic disturbance and an increase in unintegrated states" in the baby (p. 485). Bick also described a reconstruction of a history of a 3½ year old girl she saw in analysis. She stated:

The facts are as follows: a difficult birth, early clenching of the nipple but lazy feeding, bottle supplement in the third week but on breast until 11 months, infantile eczema at 4 months and scratching until bleeding, extreme clinging to mother, severe intolerance to waiting for feeds, delayed and atypical development in all areas. (p. 485)

Bick argued that in all her patients with disturbed first-skin formation severe problems of dependence and separation characterized the transference in psychoanalytic treatments. She argued that “only an analysis which perseveres to thorough working-through of the primal dependence on the maternal object can strengthen this underlying fragility. It must be stressed that the containing aspect of the analytic situation resides especially in the setting and is therefore an area where firmness of technique is crucial” (p. 486).

Rosenfeld’s suggestions for management of overflow. While Piontelli (1993) reported ultrasound observations of a seemingly second skin formation in the fetus, Rosenfeld (1987) developed a theory of fetal disturbances in psychic development that can lead to severe psychological issues after birth. Rosenfeld believed that in response to overwhelming osmotic pressure coming from the mother’s internal world, a fetus might employ protective maneuvers to fight off the experience of pressure felt in the womb. Rosenfeld believed that as a result of these protective maneuvers not only will the fetus learn to shut out the experience of mother through the various channels of experience via the placental barrier and the external environment, but the fetus might “take a wrong turning in development, become incapable of having ‘feelings’ or ‘ideas’, and so be born lacking important elements of its equipment” (p.187).

Rosenfeld drew from Bion’s (1980) imaginative conjecture that the embryo and fetus could register “primordial antenatal germs of thought or feeling” which as a result of the circumstances of very early psychic development and experience in the gestational process, these experiences could be rendered “inaccessible,” meaning out of both conscious and unconscious awareness. Rosenfeld and Bion both believed that these experiences remained inaccessible because they are often *got rid of at source*. Later in

life, it was argued that these experiences could suddenly become both conscious and unconscious simultaneously, especially in the midst of an analysis, and the resulting emotions can be both confusing and catastrophically disorganizing. Rosenfeld warned that this situation in clinical practice must be treated with caution as the force of these kinds of projections could easily lead an analyst to confront the patient with what they have transmitted in the session. He explained that these patients, both children and adults, might feel intense shame and persecution and believe that the analyst is involved in a counter-projection of their own issues. In children who's disorganized or unintegrated behaviors could be interpreted as being destructive or bad, this situation could lead to a horrible sense of abandonment and isolation. Rosenfeld (1987) explained this best in his discussion of children dealing with osmotic overflow:

It should be important to show them that they experience something destructive and disturbing which has happened to them and that they try to find in the analysis somebody who helps them to reach something more positive, good, and free from disturbing pressure. It is understandable when a child looks for help and understanding because of something inside him he cannot recognize and understand that it increases the child's anxiety when the analyst fails to give him the space to find himself. With children particularly, one finds the increased need to find the good mother inside the analyst, and they are preoccupied with trying to find a good internal space to dive into but they feel terrified that it may again be poisonous and bad and that they will have to escape from this. (p. 277)

Experiences of Pressure and Psychological Birth in Psychoanalysis

Paul (1981) aimed to construct a mental atlas of psychological birth by identifying emotional locations or coordinates that would allow one to track the experience of primitive patients in psychoanalysis. Through Kleinian and Bionian theories of projective identification, Paul conceived of an *inside* vs. *outside* continuum that was to describe states of mind that were indicative of either phantasy related to fusion with the inside of the mother's body or emergence from massive projective identification that allowed the patient to live physically and emotionally in the outside world, respectively. Paul described a series of both verbal and nonverbal phenomena that he observed across eight patients with severe narcissistic disorders. Paul attributed to these patients a utilization of prenatal transferences that he referred to as *placental* and *penitential* in which the former situation is characterized by an intense psychic attachment to the analyst that disallows the experience of separation or otherness for fear of dying and the latter is characterized by severe mental torture, cyclical thinking to the point of obsession in an attempt to avoid psychic pain, and isolation that is felt as an emotional imprisonment. Below is a summary of Paul's descriptions of these patients' experiences in treatment:

1. Disorientation and/or severe dizziness often accompany entering and/or leaving the consulting room. The consulting room is experienced as "inside the mother's body" in phantasy. Often the patient avoids direct contact with the analyst. He is only incidental.
2. There exists a long-standing projective identification that is characterized by a deep psychic fusion that involves being in the mother's body. This state of mind

is pre-dominant so that any deviation from it would lead to an intense sense of catastrophe. There is an absence of “oscillation” between an “inside” and “outside” state of mind. Interpretation related to their phantasy of fusion with mother’s body leads to immediate sensations of cold and visible piloerection (involuntary erection of the hair on the skin). These patients report histories of extreme sensitivity to slight temperature changes.

3. Interpretation of projective states leads to rapid changes in the perception of sound, temperature, visual acuity, visual clarity, which can be coupled with disorientation and dizziness or transitory vertigo as the phantasy of crossing between the boundary of inside and outside occurs. Hence these sudden changes indicate a shift from an inside to an outside state of mind. Inside is characterized by warmth, stuffiness, claustrophobia. Phantasy of the birth process is characterized by dizziness and disorientation. The experience of birth or location on the outside is characterized by temperature shifts and dizziness.
4. Shifts from the inside state of mind to the outside can cause a sudden onset of headache of often frontal and rhythmical pounding. The pounding headache is not synchronous with the heartbeat but is felt to occur “within the head” several times a minute.
5. A transitional phase of movement from the inside to the outside is often accompanied by “terror-panic” in which there is a sensation of “pressure” felt about the head that is accompanied by “sinuses” stoppage that is often described as “waves” passing from head to foot in a rhythmical force.

6. In a single case, Paul noted the presence of oedema which progressively remitted upon interpretations of phantasies of fusion with the mother's body. (See Paul, 1981 for a full description of these phenomena).

Paul (1981) also discussed the use of the lie by these patients in psychoanalytic sessions. Working off Bion's (1970) conceptualization of the inseparability of the lie and the true thought, Paul explained that the liar must come before the lie and that the lie is used in order to evade the pressure and experience of the truth. In the eight patients in which he observed the phenomena listed above, Paul reported that there were themes of crisis, criticism, and hypocrisy. Paul explained that the word *crisis* in Greek means to separate, while *criticism* refers to the process of distinction. *Hypocrisy* Paul reasoned, would mean *below criticism or beneath the divide* which would indicate an avoidance of distinction. He argued that these themes revolved around phantasies that could have originated in the prenatal state of mind in which there was an experience of catastrophic pressure involved with a forced psychological birth that was coupled with the actual physical birth of which the fetus was unready to face. Consequently, according to Paul, there was an hypocrisy in these patients that was characterized by a *cowardly non-distinction* due to a crisis of an impending psychological birth. In an attempt to construct a boundary between inside and outside states of mind, the patients employed destructive and hostile moralistic criticisms in order to maintain their current inside emotional state. Paul suggested that an observed switch in these types of patients from *descriptive phenomenological* language to harsh moralistic language could serve as a marker for the gap between pre and postnatal experience. He also suggested that this concept could be considered as similar to addictive states and narcissism.

Paul (2010, personal communication) offered as an example of this phenomenon, patients who will split their experience in an attempt to avoid the issue at hand in a particular session. He described how a particular patient might move further and further away, geographically, in time, and in space, in order to avoid what is being discussed. Most might see this maneuver as free association in which the patient continues with the analytic process offering their reactions to an interpretation or observation made by the analyst. Paul stated that this situation would often be treated in this manner where the analyst continues to painstakingly follow the material only to find that they and the patient have lost the original point. Paul suggested that upon closer scrutiny, one will realize that the patient is gradually moving away from the point in order to avoid the truth or reality of what has been brought to light in the session. He stressed that the analyst must be quite good at observing these phenomena in the moment in order to observe or interpret it when it is occurring.

Paul (1981) explained that psychoanalytic interpretations regarding the patient's wish to remain in an inside or unborn state of mind in which the phantasy of continued fusion with the inside of mother's body prevails will often be experienced as pressure similar to what was experienced prior to birth and a threat to uterine sanctuary. Paul (2010, personal communication) stated that it would be important for the analyst to consider carefully how to approach these interpretations. He reported that in his practice, he often will stay away from these kinds of interpretations for a significant amount of time until he is able to see and understand the constellation of the symptom or primitive mind set before he considers offering his translation to the patient. Until then, Paul will offer clear observations that are phenomenological in nature because he believes that first

the analyst must get the facts clear and then present the data to the patient so that it can become over time something that can be referenced to by both the patient and the analyst. The patient must be presented with the opportunity to observe and interpret the phenomenon so that they can take the experience and knowledge out into the world when the analyst is not with them.

Paul (1981) reported that Dracula phantasies can also emerge in transitional states between the inside and the outside in which the patient emerges from a coffin (womb) buried within the Transylvanian soil (mother's body) only to sink their fangs into the victim (analyst mother). Paul argued that while these types of phantasies could be understood as related to oral sadism, he understands them as representing a phantasied attempt to maintain a placental contact outside the mother's body. In situations in which the experience of pressure is too great, the patient will disburden the pressure through massive projective identification with the analyst. Paul described one patient whose verbal onslaughts were so forceful that he referred to it as *repetition percussio* because the verbal material was more felt than heard. Paul explained:

This I have named 'repetition percussio,' as it heralds the experience which, if continued, lead to blinding dizziness, loss of orientation in space, terror, and such intense blaming hatred that she avows that mere contact with me has produced the experience which is so frightening she cannot continue it and yet cannot stop until either she has reached a limit at which point the dysphoric state will be interrupted by a violent mental event signaled by the sudden presence of dizziness. (p. 559)

Finally, Paul (1997b) provided what he considered to be signposts for the analyst to utilize when determining the degree of projective identification in use by a particular

patient. These signposts consist of key words that patients use that can provide clues that indicate their current mental location while changing from inside to the outside. These words are: dumb, stupid, weird, and strange. The word *dumb* can be considered to be the most primitive of these states and the *maximal inside state of mind* while *weird* can be thought to indicate the beginnings of an emergence from psychic fusion or projective identification. The word *stupid* has to do with a state of mind that is related to a stupor in which what has occurred is different from what the patient expected or when there is a mental confusion or an experience of no space between self and other. In short, the experience of stupidity could be related to an active state of not knowing. *Weird* was designated as a *border state* between inside and outside in which there is a beginning of an intuition with regard to a split in sense representations or a split in the object. In this state, whole objects cannot be formed but there is a beginning of an awareness of something more than a part-object or one dimensional experience. The word *strange* then is thought to indicate not only a state of separation but also a state of unfamiliarity. Thus *weird* could be thought to indicate a mental state in motion perhaps in route to something that is new or *strange*. According to Paul (1997b) the relationships between these four words that are thought to provide mental coordinates of states of mind in psychoanalytic sessions are believed to be fluctuating but can be used to decipher whether a patient is in a severe state of psychic fusion or emerging from projective identification into an unfamiliar state of separateness.

Bion's Concept of the Total Personality

Tabak de Bianchedi et al. (2002) introduced an intriguing argument with regard to Bion's concepts of the *psychotic part of the personality* and the *total personality*. Bion

(1955) contended that all human beings have a part of the personality that could be considered to be the aspect of the mind that could give rise to psychosis or psychotic functioning. In his paper, *Caesura*, Bion (1977) stated:

The psychotic patient may be anxious to suppress, be blind to or unaware of what the sane person is able to see; the character is psychosis minus neurosis, or psychosis minus sanity, or sanity (rationality) minus neurosis or minus psychosis. The important thing is not that a patient is a border-line psychotic, or a psychotic, or neurotic, but that he is a total character minus...and then we have to form our own judgment of what the patient is minus... (p54)

In his later papers, Bion referred to parts of the personality that have a very archaic origin which could be considered to be *vestiges of pre-natal phenomena*. In *Evidence*, Bion (1976) offered an imaginative conjecture in which he suggested that a fetus almost to term:

could be aware of extremely unpleasant oscillations in the amniotic fluid medium, before transferring to a gaseous medium – in other words, getting born...Suppose this foetus is also aware of the pressures of what will one day turn into a character or a personality, aware of things like fear, hate, crude emotions of that sort. (p. 245)

Tabak de Bianchedi et al. (2002) tracked Bion's arguments with regard to hallucinatory phenomena and noted Bion's (1958) understanding of visual, auditive, olfactive, and cenesthetic hallucination as evacuations of unwanted aspects of the personality. In his later papers, Bion began to refer to these phenomena as remnants of pressures on the auditory or optic pits of the fetus or embryo in prenatal levels of mind.

According to Tabak de Bianchedi et al. (2002), Bion considered these remnants of the prenatal mind to be *proto-emotions* or *sub-thalamic terror*. He believed that these levels of mind were *un-thought fight and flight reactions* that became active in certain moments. In light of Bion's ideas regarding the total personality, and his seeming shift from his belief in the psychotic part of all human personalities to his idea of *sub-thalamic terror* originating in the prenatal mind, Tabak de Bianchedi et al. argued:

if the total personality includes everything: prenatal aspects, “normal” and “psychotic” baby parts, little girl/little boy parts, latent, adolescent and adult aspects, and so forth, then it is possible to see the patient as an adult minus child, minus baby, and/or minus fetus/embryo. (p. 103)

In Bion's *A Memoir of the Future* (1975; 1977; 1979) his writings began to not only acknowledge the possibility of the prenatal part of the personality, but he also began to attribute valuable gifts emanating from this level of mind such as intuition of danger, sub-thalamic fear, and contact with dream life. In Book III, Bion (1979) also creatively depicted the inherent issues of communication between the layers of mind as the pre and postnatal characters were unable to connect with each other because of a confusion of languages. Thus, Tabak de Bianchedi et al. suggested that psychoanalysis could be thought of as an endeavor that seeks to help achieve a dialogue with different parts of the total personality.

Bion (1970) considered the possibility that the prenatal level of mind could be a source of human originality and creativity. Bion articulated the problem of working with these archaic levels of mind when he stated: “Genius has been said to be akin to madness. It would be more true to say that psychotic mechanisms require a genius to manipulate

them in a manner adequate to promote growth or life (which is synonymous with growth)” (p. 53). Tabak de Bianchedi et al. (2002) suggested that to help the personality become total, the analyst must find ways to traverse the caesura in both directions, from postnatal to prenatal and vice versa. One creative way offered by these authors to traverse the caesura is in their challenge of the concept of envy. They believe that if the psychotic part is considered a prenatal presence, then it could be understood that excessive intolerance of frustration and/or pain by the fetus’ inchoate personality could be involved with postnatal hatred of internal and external reality and not an envious attack on the object. Bion’s (1977) description of the paradox of working within investigations of the caesura articulated this issue most clearly:

In the psycho-analytic experience we are concerned both with the translation in the direction of what we do not know into something which we do know or which we can communicate, and also from what we do know and can communicate to what we do not know and are not aware of because it is unconscious and which may even be pre-natal, or pre-birth of a psyche or a mental life, but is part of a physical life in which at some stage a physical impulse is immediately translated into a physical action. (p. 55)

Investigations of the Caesura

Bion (1977) asked:

Can any method of communication be sufficiently ‘penetrating’ to pass that caesura in the direction from post-natal conscious thought back to the pre-mental in which thoughts and ideas have their counterpart in ‘times’ or ‘levels’ of mind

where they are not thoughts or ideas? That penetration has to be effective in either direction. (p. 47)

In his discussion of the caesura of birth, Grotstein (2007a) noted that the significance of the concept of the caesura was expanded by Bion to a model between countless onion peels or layers of our minds. He cited Bion's observation regarding this matter:

The personality does not seem to develop as it would if it were a piece of elastic being stretched out. It is as if it were something which developed many different skins as an onion does. This point adds to the importance to the factor of the caesura, the need to penetrate what is recognized as a dramatic event like birth, or a possibility of success or a breakdown...We are dealing with a series of skins which have been epidermis or conscious, but are now "free associations." (Bion, 1977, as cited in Grotstein, 2007)

Grotstein (2007b) argued, "Symptoms originate in the 'prenatal' (unconscious) self and burst through the membrane to become apprehended by the 'postnatal' (conscious) self...A failure to countenance what has broken through condemns us to break up or break down" (p. 257). But how does one access deeper layers of mind, especially that of fetal mental life in psychoanalysis? Grotstein (2009b) suggested that later stages of development, especially latency and adolescence, can often be recapitulations of infancy and perhaps even prenatal experience. Clinical material can often be understood as a layering of past experiences being presented over and over again in repetition. He argued, "What we hear in the consulting room, consequently, is the past's being presented as presences (internal objects)" (p. 257). In his theories regarding psychic retreats and negative therapeutic reactions, Grotstein (2009b) elucidated the experience of

the infant as a *castaway* from the interiors of the mother's body and the ensuing wish to reclaim what once belonged to him and was him. A failure of adequate containment from the mother around issues of separation and intense longing for a return to the safety of the inside of her body could lead to a psychic retreat in which there is a disingenuous protection of the infant from any further experience of separation. Grotstein described this regression as:

- a) a passive surrender to dedifferentiation (phantasy of returning to the womb) because of ego compromise due to trauma or primary unreadiness to be born (Bion, personal communication as cited in Grotstein, 2009), or b) an active aggressive attempt to reclaim what the infantile aspect of the analysand believes is rightfully his – to be restored to his lost kingdom of “umbilical womb service” and absolute contingency, the total absence of perturbing stimuli, and the abrogation of the need to face the struggles of life... (p. 219-220)

Grotstein described these experiences as *stations of the cross* for neonates and he argued that Bion's imaginative conjectures allowed for contemplation of the fetus' *catastrophic premonitions* of these realities as it develops into an infant.

Primitive Wave Bands

Van Buren (2002) noted that children often are stirred to both “awe and hatred” when they experience signs of dependence such as the breast. This experience can be most disturbing when there has been a harsh sense of separateness too early in development or a premature awareness of psychic birth. She explained:

The human infant phantasies a privileged return to the blessed safety of the internal spaces of mother's body as a flight from anxiety and pain. In the robust infant's mind the internal voyage is playful and temporary, but in the case of the disturbed or vulnerable infant fusion states become more a prison than a refuge. (p. 142)

As a result of intense feelings of disconnection, the infant's phantasied return to the safe internal space of the mother is burdened with expectations of maliciousness or being trapped (Van Buren, 2002). Van Buren explained that Bion's concept of the container which affords the infant the opportunity to unburden himself of turbulent wave bands of experience and have them held, detoxified, and interpreted, provides us with a means by which we can enter into unconscious logic and begin to make meaning of the ultra verbal in psychoanalytic sessions. Nonverbal communications, in addition to the verbal ones, carry *ineffable messages* that are transferred and translated between one unconscious and another. According to Van Buren, Bion (1967) defined non-verbal communication in two ways: 1) readable preverbal messages which are communicated in normal projective identification; and 2) highly disturbed psychic messages sent in chaotic projective identification. This second situation is characterized by "forceful evacuation of painful and disorganized emotions, and the use of somatic delusions, hallucinations, and bizarre objects..." (Van Buren, 2002, p. 148).

Van Buren (2002) argued that psychoanalysis helps the patient to make contact with lost aspects of the self. But wave bands of extreme distress, disorientation, and ecstasy are usually transmitted via nonverbal transmission, beyond familiar signals. Van

Buren (2010) explained Bion's understanding of the consequences of the lack of a maternal container in his essay on *A Theory of Thinking*. She stated:

the lack of what he would later call a container was described as leading to a holocaust of missile-like bits of experience, pushed and pulled back and forth between the two participants; patient-analyst, mother-infant. Without the receiving mind, generations of unsolved hopelessness and helplessness rise up to plague both minds with a fear of living and of dying. Hatred, envy, and fragmentation accompany the failure of containment. These thoughts and the thinking that would accompany them are stillborn or distorted beyond recognition. (p. 113)

She went on to discuss the maintenance of the mind when experiencing truth that emanates from the unconscious or what Bion and Grotstein (2007b) referred to as *transformations in O*. She suggested that the infant needs help with negotiations of *catastrophic change* and *the experience of the caesura*. If the infant's experience with these realities is not gradual then there is an overexposure to unformed and uncontained raw emotional experience which can lead to a shatter of one's going on being and a *mutilation* of one's mind. She explained the delicacy of this process and warned of the dire emotional consequences should a balance not be maintained throughout the journey into these sometimes historically inaccessible or as she referred to them, the "stillborn or unborn" aspects of the mind. She stated:

The balance is indeed delicate to achieve, to arrive, for example, at realizations that bring growth and knowledge without default into a breakdown and, paradoxically, a flexible boundary state between the experiences of different

mental states – prenatal, postnatal, conscious, and unconscious. The caesura is both separating and clarifying, but it can carry the unknown in such forms as to be horrifying or even pulling toward the void. (Van Buren, 2010, p. 114)

In her discussion of prenatal contiguity and postnatal appetite, Robinson (2010) discussed the need for a revision of what has historically been regarded as pathological defense in the postnatal world. She suggested that these postnatal maneuvers might now be considered as necessary and adaptive coping strategies that had been utilized to preserve the life of the fetus in the prenatal world. She argued that developmentally:

...it might be said that anxieties of the depressive position may find regressive comfort in the fantasized certainties of splitting in the paranoid-schizoid position, and that anxieties of that phase may find regressive comfort in the fantasized familiarity of prenatal contiguity. (p. 84)

Bion (1977) articulated the common struggle of psychoanalysts in their investigations of the caesura with their patients. He stated, “The problem for the practicing analyst is how to match his hunch, or his intuition, or his suspicion with some formulation, with some conceptual statement. He has to do that *before* he can give an interpretation” (p. 45). He goes on, “...giving an interpretation means that the analyst has to be capable of verbalizing a statement of his senses, his intuitions and his primitive reactions to what the patient says” (p. 45). As Grotstein (2007a; 2009) noted, Bion’s imaginative conjectures provided us with a framework to consider the caesura as not only a *binary opposition structure* in which the prenatal and postnatal, or unconscious and conscious, work together in constant communication providing access to the ineffable messages that can grant us access to our creativity, dreaming, and individuality, but also

that the fetal mind is but a layer of our total personality in which there exists an influence of our previous *past* on our current *past-presented*. Bion concluded his paper *Caesura* with a salient piece of advice for practicing psychoanalysis and exploring deeper levels of the mind. He said, “So...? Investigate the caesura; not the analyst; not the analysand; not the unconscious; not the conscious; not sanity; not insanity. But the caesura, the link, the synapse, the (counter-trans)-ference, the transitive-intransitive mood” (p. 57).

Summary

Prenatal theory has been applied to inform clinical psychoanalysis, including its understanding of patient experience and technique (overview presented in Appendix D). Central to this area of investigation is first Ploye’s (1973) suggested criterion for valid reconstruction of prenatal imprints in the transference in psychoanalytic treatment. While he delineated four criteria including plausibility, psychoanalytic, historical or anamnestic, and therapeutic, he encouraged that initially the historical or anamnestic criteria be the area of focus in which there will be either an immediate or later historical confirmation of the reconstruction in order to deem it as valid and useful for treatment purposes. Ploye (2006) also recommended that psychoanalytic interpretation regarding these reconstructions be made along postnatal lines first, if there is one to be made, in order to provide a more acceptable or understandable explanation for the patient’s symptoms. He suggested that interpretations of the prenatal line could be used judiciously to complement these interpretations or in the future as the analyst sees fit.

Next, indicators for treatment were offered by authors Raphael-Leff (1982; 1996), Apprey (1987), Thomson (2007), and Bergner, Monk, and Werner (2008). Raphael-Leff recommended brief psychotherapy for pregnant mothers in order to help meet their

emotional needs depending on their history and their perceptions and expectations of pregnancy and to ensure the achievement of three psychological situations: emotional fusion with the fetus early in pregnancy, gradual differentiation during pregnancy, followed by a physical and psychic separation of baby and mother at birth. Apprey (1987) argued for the use of *pregnancy psychotherapy* in which pregnant mothers would have the opportunity to explore the three-way interaction of mother, fetus, and mother's mother in an attempt to reduce pathological misperceptions of the fetus perpetuated through the use of projective identification during pregnancy. Thomson (2007) reported symptoms of prenatal stress that can be observed and possibly indicate precursors to disorganized attachment. These included elevated heart rate in the fetus, greater activity levels, pronounced stilling, and disrupted sleep patterns. Finally Bergner, Monk, and Werner (2008) argued that psychotherapy during pregnancy should be thought of as a preventative intervention to provide the mother with an opportunity to engage and explore her own unconscious phantasy with regard to self and other and maternal representations.

Piontelli (1987; 1988; 1989; 1992; 1993) reported her observations of children and adults engaged in unconscious phantasy regarding their intrauterine life. Her observations of fetuses and their neonatal counterparts led her to conclude that psychological birth is not only an individual process but also a process that sometimes is not achieved until one's death. Her clinical material of Vera, a 2 year-old child that was born with the umbilicus wrapped around her throat illustrated her theory that prenatal experience and in this case, struggle, can carry over into postnatal phantasy and functioning.

Bick (1968) presented her theory of primary psychic skin in which early experiences of containment from the primary object gradually leads to a sense of an internal container that functions as a holder of mental content. Rosenfeld (1987) suggested that prenatal experience of intense overflow from the maternal emotional world can lead to experiences similar to what Bick termed as second skin phenomena in which there is an impenetrable outer shell that is produced before birth that serves to seal off the fetus and postnatal infant from unwanted forceful impacts from the mother. Rosenfeld drew from Bion's ideas about fetal mental life and offered recommendations for sensitive consideration and technique for working with these types of cases in psychoanalytic treatment.

Paul (1981, 1997b, 2010 personal communication) devised an *inside – outside continuum* in which there exists prenatal functioning and in treatment, prenatal transferences such as *placental* and *penitential* mind sets that operate in ways that seek to preserve an inside state of mind. Phantasy of fusion with the inside of the maternal body characterizes these types of transferences. Paul argued that the analyst must not only be extremely sensitive, patient, and observant of these states of mind but that the analyst must be aware of avoidance maneuvers employed by these patients that can be misleading. Signposts such as the use of the words, dumb, stupid, weird, and strange as well as the use of massive projective identification characterized by *repetition percussio* in which communications are more felt than heard can help the analyst locate the mental coordinates of the patient between the inside, the birth canal, and the outside.

Tabak de Bianchedi et al. (2002) utilized Bion's (1976) concept of the total personality to delineate their own version in which the prenatal experience might replace

Bion's contention that every human being has a *psychotic part of the personality*. Bion's later works reflected this idea as well in which the fetal mind was thought of as characterized by *unthought fight and flight reactions*. Bion (1976) referred to this level of mind as *sub-thalamic terror* which deems it inaccessible but can be evoked in particular situations in postnatal life to not only provide access to intuition of danger and contact with dream life, but also creativity and individuality. Tabak de Bianchedi et al. utilize their theory to challenge the Kleinian concept of postnatal envy.

Finally, Bion (1976) provided his recommendations for psychoanalytic work involved with the investigation of the caesura between pre and postnatal life. Grotstein (2007a; 2009b) suggested that origins of psychic retreats and negative therapeutic reactions are involved with a phantasied regressive return to *umbilical womb service* in the intrauterine sanctuary. Symptoms according to Grotstein originate in the prenatal (unconscious) and are manifested in postnatal (conscious) life. Van Buren (2002; 2010) drawing on the work of Bion and Grotstein, offered her technical recommendations for helping the patient traverse the caesuras of everyday life and the catastrophic anxiety that occurs in response to catastrophic change. This includes the primitive wave bands of experience that are communicated through massive projective identification by way of nonverbal communication that are the result of a lack of an adequate containing experience that might affect all parts of the personality, prenatal and postnatal. Hence, Van Buren argued that psychoanalysis helps the patient make contact with the lost, stillborn, or unborn aspects of the self. Bion (1976) recommended that the practice of psychoanalysis only be involved with investigations of the caesura.

Critique of the Findings

Probably the most salient limitation for the study of prenatal psychic experience, especially with regard to psychoanalytic theory, is related to the impenetrability of certain uterine situations that makes the empirical study of these processes virtually impossible. Measurement of inherent capacity such as Horner's (1992) idea of the *contact seeking nature* of the embryo or Bion's (1962) pre-conceptions is difficult because these concepts tend to fall into the *rationalist-nativist* realm in which the significance of sense data is overshadowed by a belief in the existence of innate knowledge and ideas.

Wilheim's (2010) hypotheses regarding the trauma of conception and the imprint left on the cells of the fertilized egg through cellular memory are impossible to validate as these processes occur out of sight and out of awareness of the mating couple or the empirical researcher. Even if this process were observable, it seems that there would be no way to determine whether the human *concept* has an experience or sense of trauma during the conception and post-conception process. Maiello's (1995) hypothesis of the sound object also seems to fall in this category. While scientific evidence has shown that the fetus can discriminate the sound of the mother's voice and native tongue, and it has been widely accepted that the fetus can hear or experience low frequencies during the first trimester and high frequencies during the second trimester, there is virtually no way to determine how absences and presences of the mother's voice are processed or even whether they are represented in the mind. This could also be true of Mancia's hypothetical proto-mental nucleus and Tustin's theories of prenatal protective reactions. The reader, it seems, is left only with psychoanalytic models, similar to Bion's model of alpha function, to consider and to utilize in practice.

Ploye (1973) discussed an inherent limitation of prenatal reconstructions in psychoanalysis. Although he endorsed the possibility of prenatal imprints that could emerge in the material during sessions, he stated, "...the main difficulty will be that of establishing *scientifically* whether or not one's reconstructions of supposed intrauterine experiences, good or bad, are valid or merely a product of one's own imagination and personal interest in the subject" (p. 242). A second limitation that Ploye discussed was that his hypothesis rests on the assumption that symbol formation operates at levels far earlier than usually thought possible. He stated, "Such an assumption, when one is dealing with events so removed from the normal range of sensory perception as we know it, may seem preposterous" (p. 243). But he encouraged that the question of *whether* these prenatal imprints are possible should first be answered. Once this first question is answered, if it ever is, then one will have reasonable grounds to find justification for "how?"

Issues Related to the Epistemology of the Mind

A common theme in this dissertation has pertained to the issue of inherent capabilities of the fetal mind that not only influence functioning and experience throughout gestation but also emerge as postnatal unconscious knowledge and/or symptoms in problematic mother-infant situations. History has shown that the earliest philosophers were intrigued by questions of consciousness and development of the human mind (Mckenzie & Day, 1987). From Plato to John Locke, a debate has existed over the development of the self and the mechanisms by which the self evolves. Inherent within this debate have been ontological and epistemological questions regarding the development of mental functions and how human beings acquire knowledge about the

world. Crassini (1987) explained that this debate has essentially been based on the utility of sense data. For instance, the rationalist-nativist position holds that sensory input is not the only means by which the human mind can know and perceive the world. The doctrine of this perspective is that innate ideas exist within the human mind from before birth. The empirical argument, on the other hand, holds that experiences accumulated in the form of sensations and perceptions over time are the sole mechanisms by which the human organism gains information and learns about the environment.

Kandel (2004) argued that the study of learning and memory has broad cultural ramifications as it raises vital issues that have historically confronted Western thought. In his lecture given for receipt of the Noble Prize for Physiology or Medicine, Kandel (2000) discussed both John Locke's empiricist views and German philosopher Emanuel Kant's ideas of a priori knowledge that have historically been used to address issues of the mind. Kandel mapped out his *radically reductionist* approach to his study of learning and memory at the molecular level. He explained his decision regarding *Aplysia* because its nervous system is made up of only 20,000 nerve cells. In comparison to the human central nervous system, this system is minute as the human system is made up of millions. Interestingly, the *Aplysia*'s nerve cells are also the largest in all of the animal kingdom, large enough to see with the naked eye, allowing Kandel a rare opportunity to observe the same cell in both a trained and untrained sea slug. Kandel (2000; 2004) argued that in essence, "we are who we are because of what we know and what we remember" (p. 2). His research was focused on the molecular mechanisms involved with implicit or procedural forms of memory and he explained that most of our mental life occurs without conscious awareness. In his observations of pre and post-sensitized sea

slugs, Kandel discovered 24 sensory neurons and six motor neurons that were specific to a gill withdrawal reflex, akin to a quick withdrawal of a hand from a hot stimulus. In Kandel's view, these sets of neurons represented a pre-wired neural circuit or an inbuilt architecture of the brain that contained a basic knowledge about a basic behavior.

According to Kandel, this was a "reductionist form of Kantians' view of the world" (p. 5). Another of Kandel's interesting discoveries was what he termed *synaptic plasticity*, in which he found that by way of protein synthesis, these pre-wired, invariant connections in the brain could be altered through experience. Overtime, repetitive aversive stimuli led to the transformation of a short-term memory into a long-term memory and therefore new synaptic pathways in the original neural circuits. In the *Aplysia*, there was an observable doubling in the number of synaptic connections (Kandel, 2004). Kandel argued that this alteration in neuronal circuitry was reflective of Locke's view of the world. Kandel (2004) explained:

So we see here Locke's contribution to the thinking of the gill-withdrawal reflex, and a reconciliation in a radically reductionist form of these two point of views; that is, built into the brain is the capability for neural action. But what is not specified in the genetic and developmental program is the exact strength of these synaptic connections and what environmental contingencies – such as learning – play upon is the ability to modify strengths. And you can do that with different forms of learning in both directions. (p. 6)

Kandel (2000) argued that *synaptic plasticity* is a fundamental mechanism for information storage in the nervous system which could be thought of as an inbuilt capacity of the molecular architecture of the *Aplysia*. He concluded that while there are

“no fundamental functional or biochemical differences between the nerve cells and synapses of humans and those of a snail, a worm or a fly,” (p. 395) the question is whether the human brain and nervous system is similar to the nervous system of simpler animals.

Throughout this dissertation, a number of theories were presented that hypothesized inborn capacities of the embryo and fetus. The majority of these theorists were profoundly influenced by Bion. Grotstein (2009b) discussed Bion’s role in terms of his “radical contributions on psychoanalytic ontology and epistemology” that was deeply rooted in Bion’s background in philosophy. He stated:

He seems to have taken sides in the age-old debate between empiricism and rationalism against the former and in favour of the latter. Empiricism propounds that the human being is a *tabula rasa* and begins to formulate his thoughts and opinions on the basis of observed data, past and present, and even future, since the empiricist will anticipate the future (desire) on the basis of what he has already sensuously experienced. The rationalist, on the other hand, believes that mind precedes experience so as to be able to format it. These anticipatory formats include Plato’s Ideal Forms and archetypes, and Kant’s transcendental idealism, including primary and secondary categories (space, time, and causality), noumena, the things-in-themselves, empty thoughts.” (p. 313)

Grotstein noted that while Bion seemed to draw from both empiricism and rationalism in his epistemology...

His concept of inherent pre-conceptions embraced Plato’s Ideal Forms and archetypes, which he poetically called “thoughts without a thinker” “that are older

than their thinker.” He united Kant’s “things-in-themselves” and “noumena” into his now famous “beta-elements,” those primitive pre-thoughts or non-mentalized proto-affects that await a mind to think them by “alpha-bet(a)-izing” them by alpha-function into alpha-elements that can then enter into “mental digestion” as memories, feelings, and thoughts. (p. 313)

As history has shown, this debate regarding inherent characteristics of the mind will definitely continue and explorations into the emotional life of the fetus will undoubtedly be influenced by this. Perhaps the true test will be in the possible clinical applicability and utility of these concepts in both psychology and psychoanalysis, as many of these mechanisms posited will remain buried in the unconscious mind out of reach of observation and empirical study.

Conclusion

Through the application of Grounded Theory, seven core aspects of prenatal experience were identified. These features, taken together, suggest that aspects of conception, the mother’s mind, the experience of sound, the experience of trauma, unconscious mental processing, the experience of pressure, and psychoanalytic technique can have an influence on the emotional life of the fetus and pre and postnatal development. Chapter IV further discusses the conclusions of this analysis of the psychoanalytic literature, offers opinion about the implications of these findings for clinical practice, critiques the strengths and limitations of the research method, and proposes future directions for scholarship.

Chapter Four: Discussion

Psychoanalytic literature was analyzed via Grounded Theory methodology in an attempt to provide a comprehensive review of theory related to prenatal psychic experience. This chapter presents discussion regarding issues related to prenatal research, implications of the findings for psychoanalysis and psychology, limitations of the methodology, and areas for future scholarship.

Issues Related to Prenatal Research

McPherson (2006) offered an interesting discussion regarding the issues that exist between various camps and paradigms in prenatal research. He presented two categories of literature in prenatal psychology analogous to the well known “Type A” and “Type B” personalities discussed in college level psychology courses. To review, the “Type A” system focuses on “products, objectivity, impersonal logic, detachment, and discrete categories of knowledge based on proof of scientific evidence.” While the “Type B” system favors “being, subjectivity, emotion, magic, involvement, association, belief, spirituality, and non-causal knowledge” (p. 10-11). McPherson suggested that there are two categories in prenatal psychology that could be referred to as *scientific-conservative* and *romantic-progressive*, where the former literature is focused more on carefully controlled experiments, reflects high academic standards, and are usually represented by the American Psychological Association, and the latter usually aims to address scientifically problematic areas, endorses and studies paramedical healing, and spirituality. While the claims of the romantic-progressive literature are often “undeniably valid and important” in the most extreme cases, some researchers tend to “wildly exaggerate fetal abilities.” Scientific-conservative medical research tends to downplay

apparent successes in paramedical approaches that are problematic to investigate empirically. McPherson suggested that it is seldom that the gap between radicals and conservatives in various fields of study is as wide as it is in prenatal psychology. He argued that a middle course between the two is necessary because the explanatory power of the *Type A* system ultimately complements the descriptive relevance of the *Type B* systems.

Implications of the Findings for Psychology and Psychoanalysis

The implications for psychology and psychoanalysis are broad as the field of prenatal psychology is relatively young and the theories that have been offered and studied in psychoanalysis have been disparate and often not fully developed. Grotstein (2009a, personal communication) argued that the study of prenatal psychic life is urgent and vital as it could help to bridge the gap between prenatal risk and postnatal psychological injury or pathology. Numerous psychological conditions such as schizophrenia, autism, bi-polar disorder, borderline conditions, severe anxiety and depressive illnesses could have origins in the prenatal and the preventative and exploratory study of these conditions could also significantly inform remedial measures. Freud (1987) argued that this could be an uphill battle because there still remains a tendency for prenatal phenomenology to be considered in terms of postnatal manifestations.

Implications of Psychoanalytic Theory of Conception

A pervasive theme in this dissertation is the concept of inherent or inborn capacity. Horner (1992) and Szejer (2005) both suggested that the embryo, and its previous forms, engages in a perpetuation of life through its own inherent agency when it

implants itself in the womb of the mother and begins its first human, albeit biological relationship. Horner described this capacity as a *contact-seeking nature* while Szejer suggested that this implantation into a human relationship is a requirement that is necessary for life to flourish. While it is difficult to assess the validity of these claims due to the impenetrable nature of life immediately after conception, these concepts could serve as useful in philosophical, psychological, and psychoanalytical inquiries. There is a dearth of developmental research that has shown how the infant is prepared for intersubjective relations at birth. These capacities, described for instance by Trevarthen (2000) as an inherent search for *companionship* or Stern (1985) as a *pre-wired rudimentary sense of self* are thought to help promote attachment with the primary caregiver and to maximize the opportunity for development.

Grotstein's (2007a; 2009) idea of inchoate alpha function or a rudimentary mind in the infant that is able to perpetuate a search for an auxiliary mind to help with its emotional digestion and development also seems to fall into this category. An interesting question regarding this area is from where and when does this capacity begin? While bordering on the radically esoteric, could it be possible to consider the concepts offered by Horner and Szejer as providing interesting areas for new imaginative conjecture regarding the innateness of much of our abilities as postnatal human beings? Wilhelm's (2010) conjectures regarding the experience of pre-conception, conception, and post-conception and the possible enduring effects later in life due to cellular memory and the trauma of conception at the very least offer a possible model for understanding the human mind in this vein. Wilhelm's attempts were inspired first by her experience with Bion, and then by her interest to understand for herself negative therapeutic reactions in

treatment, the psychotic part of the personality, and the most primitive aspects of our development in utero. Much like the states she aimed to describe in which there are happenings that occur so early that it might be impossible for the mind to know, only to sense, so it might be for our understanding of these states of mind. Ploye (2006), a pioneer in the field of psychoanalytic inquiry into the prenatal, endorsed Wilhelm's research as he suggested that her idea of conception shock could provide valuable information for the practice of psychoanalysis and also, ultimately, contribute to our understanding of how the mind operates, or how it does not.

Implications of the Mother's Mind

The practical implications for the findings in the Mother's Mind section are far reaching. The grounded theory presented in this section provides a strong base of both psychoanalytic theory and developmental research to begin to consider the psychological and chemical effects of stress, depression, anxiety, and also the effects of these on the mother and the fetus. Maternal representations provide valuable access into the internal world of expectant mothers as the research by Apprey (1987), Raphael-Leff (1996), and Arnott and Meins (2008) has shown. The mother's experience of pregnancy surely affects her internal psychological situation and the feeling of having something, a fetus, growing inside her can often give way to severe experiences of anxiety or claustrophobia.

One particularly important aspect of this area is the conceptualization and the assessment of risk in pregnancy. Both Apprey (1987) and Thomson (2007) argued for a careful overhaul of what could be understood as risk in both the pregnant mother and in the developing fetus. It seems that the expectant mother's experience with her own mother as well as her potential unfulfilled longings during her own childhood can linger

and/or re-emerge during pregnancy. The field of prenatal care could stand to begin to consider these areas of emotionality and psychological well-being as the evidence suggests that the mother's unresolved states of trauma or troublesome affect could have problematic impacts on the developing fetus (Field, 2007; McPherson, 2006; Bergner, Monk, Werner, 2008). As Apprey (1987) suggested, childbirth is but a station that is visited throughout the developmental process following the first birth of conception and new considerations regarding the emotional life of the fetus and of the pregnant mother must be included to broaden the scope of preventative care and to begin to transform how we as a society think about prenatal experience. Bergner, Monk, & Werner (2008) argued that psychoanalysis is especially suited to contribute to this endeavor because the process is generally focused on conflictual representations and affective difficulties. The inclusion of pregnancy psychotherapy is one important issue that should be considered in psychological, psychoanalytical, and medical fields.

Bion's (1977) and Grotstein's (2007a; 2009) ideas regarding the caesuras of life suggest that perhaps the caesura of birth (the gap between pre and postnatal life) is not the first caesura that we as human beings experience. Bion argued that the personality is built upon layers and layers of experience that in effect represent countless caesuras that have been traversed in the perpetuation and development of life. Grotstein suggested that these layers are like onion peels of our past experience and that perhaps postnatal symptoms have origins in the prenatal processing of both sensory and psychological stimuli. It seems that all fields interested in the prenatal have a responsibility to begin to try to develop a keen sensitivity to the early micro-experiences of the mother and fetus. Or perhaps, there at least should be a clearer understanding and an increased respect for

the internal happenings of the gestational process. In this way, we could all learn to be better teachers. At the very least, as Thomson (2007) strongly urged, there should be an increased understanding, especially with clinicians, regarding the potential harmful effects of prenatal stress.

Implications for Theory Regarding the Experience of Sound

Norman (2001), Salomonsson (2007a; 2007b), and Szejer (2005) all presented models by which they communicate with infants in psychoanalytic sessions. While Szejer, highly influenced by Lacan, argued that the infant is capable of deciphering adult language in a rudimentary fashion, Norman and Solomonsson drew upon the field of semiotics and Bion's theories of the container/contained to argue that the infant is pre-wired to communicate at a pre-lexical level through the use of signs, sensory communication, and projective identification. The grounded theories presented regarding the experience of sound and early object relations offer exciting areas of inquiry that could prove to be extremely useful in the endeavors described above as well as with child and adult treatments.

Maiello's (1995) concept of the sound object or a proto-object, akin to a prenatal pre-conception of the postnatal breast that develops through the presences and absences of the sound of the mother's voice is compelling. Her argument, drawing significantly from Bion's (1962) theory of thinking offers clinicians a viable model of prenatal functioning and processing and possible postnatal counterparts that emerge as a result of the prenatal situation. The empirical evidence included in this section suggests that the fetus' discrimination of vocal characteristics in utero, such as prosody and tonality, provides information with regard to the mother's emotionality as well as her intentions

(Childs, 1998). In essence, vocal qualities can serve as not only carriers of unconscious material but also as a warning system to indicate the emotional state of the speaker. For the clinician, this finding is extremely important because it suggests that as postnatal beings we are programmed to decode emotionality in speech. The clinician's prosody and tonality might be the first aspect of language that is registered by our patients whether children or adults, and especially infants. This also suggests that the prosody and tonality of the patient's speech, or in younger children and infants, utterances, could provide clues regarding the patient's current mental state, sometimes regardless of the actual text.

Maiello's (1997; 2001) extension of Tustin's theories regarding autistic encapsulation represents the shadow side of her hypothesis of the sound-object, providing clinicians with a second useful model to be able to think about and imagine an intrauterine experience of trauma. The infant or child that struggled with a lack of a soothing maternal voice, perhaps due to maternal depression or an overflow of overwhelming stimuli that leads to the fetus' shutting down of auditory experience in a protective capacity, will have a significantly different experience of the qualities of speech than a normal infant. This could be true of adults as well. This information suggests a possible reconsideration of the use of silence in psychoanalytic treatment, especially with primitive patients. Could prolonged silence lead to a recapitulation of the original trauma of absence? Could the pressure sometimes felt in silence be equated to the experience of "osmotic overflow" in patients who had troubled mothers during gestation? When working with newborns, infants, toddlers, or even premature babies, Maiello's theories offer the clinician important considerations and clinical referents to

draw from when integrating reports of medical history, significant events of gestation for both the fetus and the mother, and current presenting concerns.

Implications for Protective Reactions in Utero

The field of autism research has suffered many trials and tribulations. Tustin's theories of autistic encapsulation took many forms as her ideas developed throughout her career. Issues related to the existence of a stage of primary autism were possibly the most controversial within psychoanalytic study of this illness. In her last publication, *The Perpetuation of an Error*, Tustin (1994) aimed to correct her previous acceptance of a stage of primary autism because she felt that her new findings would have significant implications for not only the understanding of autistic pathology but also the origins of object relations (Maiello, 1997). With Tustin's revision of her theory of autism as a two stage illness, Tustin opened the doors to her own realizations of the possibilities of fetal mental life as well as her predecessors.

Now, Tustin's theories regarding integration of *hard* and *soft* sensations, the use of *autistic objects* in children, and her sensitive descriptions of the experience of her autistic child patients that were so often characterized by images of a watery medium such as "spilling away, leaking, liquefying, dissolving...torrential overflow, watery bewilderment, wet universe, fluid shapes, and floating weightlessness" (Maiello, 1997, p. 9) could be applied to the fetus' development and the watery universe in which it lives. In this sense, Tustin's description of autistic children as living in a state that was once *flowing* but is now *frozen* provides the reader with a visceral sense of what this experience could feel like to the fetus.

Ogden's (1989) description of the *autistic-contiguous position*, Rosenfeld's (1987) description of *osmotic pressure*, Paul's (1981) descriptions of the *placental object* and the *penitential* mind-set (Paul, 1997b; 1997c), and Grotstein's (1990a; 1990b) conceptualization of the *black hole* provides the clinician with an amazing amount of metaphor and theory that could be utilized when working with severely disturbed or primitive individuals, whether infant, child, or adult. Tronick's (1979; 1980; 1986) still-faced studies provide evidence for a state of severe disorientation and overwhelm that leads to a retreat into gaze aversion when the infant fails to engage a non-responsive mother. His studies have also shown that these characteristics can be observed in newborns of depressed mothers providing clinicians with a durable model to draw from in clinical practice but also to share with professionals in alternative fields concerned with the prenatal. Good comprehension of these processes would also be useful in the assessment of risk during pregnancy discussed above.

Implications for the Proto-Mental Nucleus and Inchoate Alpha Function

Mancia's (1981) theory of the proto-mental nucleus was published at a time when the pioneers of the field of prenatal psychic experience were just beginning to publish their considerations. Bion (1970; 1975; 1977; 1979; 1980), Ploye (1973), Paul (1976; 1981), Grotstein (1978; 1980; 1981b) and Mancia (1981) all offered ideas that were to be included in the Grounded Theory analysis for this dissertation, and more importantly, could be considered to be the fathers of psychoanalytic inquiry into the emotional life of the fetus. With regard to Manica's theory of the proto-mental nucleus, the utility of his three hypotheses that included 1) the integrative qualities of active sleep (analogous to REM sleep in the adult) in the fetus; 2) the internal representations or pre-conceptions

that develop as more complex integration takes place; and 3) the function of the psychic skin as a precursor to the container that works to transform beta elements into alpha elements in utero leads to significant application. Mancia's theory suggests the formation of an apparatus that is capable of processing sensory and psychological stimuli in a way that helps to explain not only formation of pre-conceptions but also the storing of these for postnatal life. In clinical practice, it seems plausible that one could hypothesize certain patients' uterine experience as so turbulent or problematic that their proto-mental nucleus was faulty or under-developed. This could lead to an *alpha function in reverse* situation described by Grotstein (1990a; 1990b) in which beta elements are transformed into *bizarre* objects that hijack an individual of the opportunity to live in reality or there is a phantasied alteration of reality to *rectify psychotic confusion*. Application of this theory could provide valuable insights into conditions such as attention-deficit and hyperactivity disorder, autism, childhood bi-polar disorder, and childhood psychosis, as well as the schizoid personality structures, severe anxiety, traumatic, and depressive illnesses in adulthood.

Grotstein (2009) argued that the function of dreaming is to protect an individual from the impact of ultimate truth, what Bion referred to as *O*, so that it could be transformed into *tolerable, personal, and meaningful* truth. A failure of adequate containment leads to faulty dreaming and deficient alpha function. Thus, Grotstein argued that all psychopathology *represents unprocessed O* and is the result of a problematic dreaming apparatus. He explained:

Bion assumes that all experiences, whether originating in the internal or the external world, must first be dreamed (unconsciously phantasied) before they can

be mentalized (worked on by alpha-function) – that is, remembered, thought (about), repressed, or reflected upon. He calls this process “alpha-function” (or “dream-work-alpha”), and its product “alpha-elements.” If Bion is correct in suggesting that all experiences need to be dreamed (so that they may be successfully dealt with by alpha-function), then it would follow that all psychopathology is a function of inadequate, insufficient, or misguided dreaming (phantasying), or deficient alpha-function – by a container object, originally mother, then father, then internalized within the self. (p. 130)

Grotstein’s (2007) hypotheses of faulty dreaming and of fetal processing (2007) in which beta elements would either a) be linked with pre-conceptions in utero to form proto-conceptions in the form of inchoate sensory patterns or b) lie dormant throughout gestation awaiting containment at birth where a failure of containment would lead to the origin of symptoms in the body seems to extend Mancia’s argument of the function of the proto-mental nucleus.

It seems that deficient dreaming in the postnatal could have origins in the prenatal. Grotstein’s (2007a; 2009) theory of inchoate alpha function then provides a model or a referent for clinicians and researchers alike to consider the extent of the newborn’s engagement in pre-lexical communication with the primary caregiver through the use of its cries for example or other types of significations. While not dismissing the importance of genetic conditions and predispositions, the clinician would have at disposal an additional theory of development that could shed light on various conditions at birth, especially in cases of difficult to soothe infants and failure to thrive situations. These theories of prenatal and postnatal processing could provide invaluable information for the

care of premature infants as well. One might hypothesize a problematic fetal experience in which processing of first undifferentiated functions and then more complex functions via active sleep was lacking, possibly due to a maternal emotional disturbance or a biological disturbance during gestation. This would lead to a situation that Mancia described as *regressions to archaic forms of activity* in which beta elements escape alpha-function and second skin phenomena ensue. In cases of premature birth, it could be hypothesized that development in all areas of functioning was inadequate or unfinished. Elevated levels of cortisol in stressed mothers and fetuses have also been shown to be the strongest predictor of premature birth, reduced birth weight, and slow growth rate in infants (Field et al., 2004; 2005; 2006; Wadwha, et al., 2005; and Wadwha et al., 1998).

Treatment Implications

The implications for psychoanalytic treatment are also broad as the literature pertaining to prenatal psychic experience tends to be presented in a way that is intended to inform analyses and psychotherapy. Paul's (1976; 1981; 1997a; 1997b; 1997c) contributions to this field are significant as he has provided numerous theories that can be used to consider the effects of the experience of pressure on the fetus, prior to, during, and following the birth process. Paul's argument of unconscious archaic usages of words to describe unconscious phantasy is puzzling but also intriguing as Paul has noted that the premise of his hypothesis has been verified by numerous patients across many years of practice, and also across cultural backgrounds (Paul, 2010 personal communication). Certainly, one can not ignore a patient's usage of the words dumb, stupid, weird, and strange once one has read Paul's paper. As Paul explained, these are his psychoanalytic tools that he has developed for himself throughout the many years of his practice.

Personal validation of this theory would require diligent and dedicated observation to determine personal utility of his concepts. The same argument could be made for the bulk of his work. Paul has introduced new concepts and ideas such as the mental coordinates of psychological birth, the placental object, and the penitential transference that reflect not only the depths of his psychoanalytic intuition and skills but also seems to serve as a prime example of what Ogden (2007; 2009) refers to as *analytic style*. In fact, this could be said of all theorists included in this dissertation as it reflects according to Ogden:

- (1) The analyst's use of his unique personality as reflected in his individual ways of thinking, listening, and speaking, his own particular use of metaphor, humor, irony, and so on;
- (2) The analyst's drawing on his personal experience, for example, as an analyst, an analysand, a parent, a child, a spouse, a teacher, and a student;
- (3) The analyst's capacity to think in a way that draws on, but is independent of, the ideas of his colleagues, his teachers, his analyst, and his analytic ancestors;
- (4) The responsibility of the analyst to invent psychoanalysis freshly for each patient. (Ogden, 2007, p. 1185)

Chuster (2010) and Van Buren (2010) also reflect these qualities as both of their conceptualizations of archaic elements of the human mind, *radical imagination* and *primitive wave bands of experience* or *wild thoughts* respectively, display unique approaches to a common area of inquiry in psychoanalysis. Ploye's (1973; 2006) criteria for psychoanalytic exploration into fetal psychic life offer reasonable parameters for both

reconstruction of a prenatal imprint in psychoanalytic treatments and the analyst's use of these reconstructions to inform interpretations. Rosenfeld (1987) offered salient advice for managing child patients whom have dealt with severe maternal overflow in their prenatal life. Rosenfeld also warned of the possible problematic reactions with these patients as their torment and struggle can often lead to severe acting out and a sense of impossibility in the treatment. Paul's (1981) descriptions of patient's re-experience of pressure in sessions could serve as a valuable tool for assessment of mental location with primitive patients and his recipe for keen observation calls for skilled patience and analytic discipline.

Absence and the Dreamer

Tabak de Bianchedi's et al., (2002) extension of Bion's (1977) concept of the total personality bares discussion as it refers to what Bion termed as an inaccessible aspect of the personality, first termed *the psychotic part of the personality* later to be called *proto-emotions* or *sub-thalamic terror*. As discussed above, they argued for an inclusion of embryonic and fetal parts of the personality when considering the totality of the human mind. Rosenfeld (1987) also discussed this aspect of the personality as *primordial antenatal germs of thought or feeling* (Bion, 1980) in which archaic experiences during early gestation are *got rid of at source* rendering them both out of conscious and unconscious awareness. Rosenfeld explained that perhaps these states could suddenly become conscious and unconscious simultaneously later in life leading to severe confusion and catastrophic anxiety. Perhaps Mancina's (1981) description of *regressions to archaic forms of activity*, Paul's (1976) psychoanalytic definition of the words *dumb* or *stupid* in which there is a sense of a loss of contact with oneself, and

Grotstein's (1990a; 1990b) description of severe catastrophic states that are characterized by a sense of severe isolation, meaninglessness and a *terror of nothingness and boundarilessness* could also be used to describe the experience of this phenomenon.

Grotstein (2000) conceived of the *ineffable subject of the unconscious*, an "I" that is differentiated from a "me" or the "self." According to Grotstein, this subject could be understood as both the *dreamer who dreams the dream* and the *dreamer who understands it*. Grotstein explained that Bion's container/contained held that the infant who receives containment from the mother/container constitutes a thinking couple. Grotstein suggested that this relationship could also be understood as a *dreaming couple* in which the mother's breast or face is a dream screen for the infant to project its' dreams onto its surface. He explained further:

It is my impression that Bion's concept of maternal reverie includes the maternal capacity to dream or mythify her child's projections, not just handle them realistically. The mother's ability to put the projected pain to sleep is a testimony to her capacity to dream for the infant. The infant then takes in a dreaming couple to correspond to a thinking couple that can put feelings to sleep, think about them, or do both. This function may be the origin of normal repression. (p. 12)

Grotstein argued that the dreaming couple is taken in by the infant which in dream life is represented by the *dreamer who dreams the dream*, who registers psychic pain and projects its communications via dream images into the *dreamer who understands the dream*, which is the internalized mother container who transforms the raw unprocessed material into meaning.

Since Manica (1981) posits a proto-mental nucleus that utilizes dreaming to integrate sensory stimuli, which would lead to the formation of a psychic skin that serves as a pre-conception to the container/contained relationship, could we extend Grotstein's theory of dreaming to fetal life? If so, when would the ineffable subject of the unconscious come into existence? If Mancina (1981) is correct, there would be a time in gestation when containment through proto-mental processing is unavailable either because the proto-mental nucleus is at its most rudimentary or is non-existent. In the normally developing fetus one could imagine that the experience and effect of active sleep could help form a pre-conception of a container/contained relationship that could possibly lead to the formation of a rudimentary or proto-dreaming couple and an ineffable subject prior to birth. But what about the fetuses that experience severe trauma as Tustin, Maeillo, and Rosenfeld posit? Their theories help us imagine what the situation would look like for traumatized infants and children but in adults, patients who experience catastrophic states of panic for example, or have transient psychotic episodes, is it possible that the emergence of these states is related to the inaccessible parts of the mind posited by Bion that originate in utero? Could it be said, utilizing Grotstein's (2000) theory of the ineffable subject that the dreamer in these instances of severe regression has in effect, gone away? It seems that possible answers to these questions could have significant implications for both psychology and psychoanalysis.

In so-called evidence based treatments, the patient is trained to distract themselves from their symptoms and to evaluate their automatic thoughts, core beliefs, and attributions as in the case of cognitive-behavioral modalities. But for patients whose psychic pain seems to go beyond what Bick (1968) would term as unintegration to a more

ancient time when the fetus' experience is best described by what Bion referred to as *sub-thalamic terror*, where there are *un-thought fight and flight reactions* the intervention would seem to require extreme sensitivity and an adequate comprehension of primitive psychic horror and pain. Perhaps Grotstein's (2009) suggestion of the analyst's vouchsafing of safety as the ultimate form of containment has something to do with working with patients who suffer from the emergence of these archaic states. Grotstein discussed how an infant will look to its mother for encouragement in situations that might be felt as too difficult to bear on its own. In essence, the infant looks for a situation where dread and fear ("O") would be *collaboratively confronted* with its mother. Perhaps in the treatment of the individuals discussed above, the analyst or therapist might attempt to establish an internal proto-experience of *company*, a *thinking couple* or *dreaming couple* in the unconscious mind where it might feel that no-one, not even an "I" exists in these moments of sub-thalamic terror.

Limitations of the Study

Grounded Theory is an inductive methodology that follows a systematic process that allows for collection of a large amount of various forms of data to be coded, sorted, and integrated in order to create general conclusions about a particular area of inquiry. The topic of study in this dissertation was psychoanalytic theory related to prenatal psychic experience. Due to the disparate literature and theories related to this topic in psychoanalysis, it was determined that a Grounded Theory approach would be most useful as it would allow for flexibility in the parameters of the review process as well as provide a context where a broad overview of ideas and theories could be presented.

There are epistemological limitations to this methodology that must be discussed. Due to the theory driven nature of much of the psychoanalytic writing in this area, it is difficult to conduct empirical research in which truth claims could be tested. In addition, the lack of controls in this approach, for instance through the use of outside raters, leaves the integration and interpretation of the data points open to personal biases and interests. It is important to consider the findings presented in this analysis as the product of an initial exploration of the psychoanalytic literature. As will be discussed below, the outcomes of this dissertation could serve as a base from which to continue scholarship in this area of inquiry.

Finally, the fields of study related to the prenatal in psychology and psychoanalysis are relatively young. As can be seen in this dissertation, there are a number of new terms and concepts that have been introduced that at times can seem unclear or not fully developed. Poor communication between disciplines and amongst research groups could lead to consistency issues regarding interpretation of results of research and the acceptance of descriptive psychoanalytic theory. For example, the practical applications for psychoanalysis might seem impractical or improbable for the medical field. The large gap between *scientific-conservatives* and *romantic-progressives* in the prenatal literature as described by McPherson (2006) only exacerbates these issues. There must be a middle ground between these two extremes because as Mills (2002) argued, "...empirical approaches alone cannot possibly address the epistemology of the interior or the lived quality of experiential process, we must attempt to approach the question dialectically" (p. 790).

Recommendations for Future Scholarship

In retrospect, the choice of Grounded Theory methodology seems even more fitting as the sentiment of the process seems similar to Bion's approach to psychoanalysis and Bion seems to have been one of the most, if not the most inspirational figures for the study of the prenatal. Bion (1967) suggested that the analyst must abandon memory and desire when engaged in a psychoanalytic session. Any and all previous knowledge of the patient or previous sessions is to be forgotten in order to allow for a natural evolution of the unknown to develop in the material. Grotstein (2009, conference New Center for Psychoanalysis October, 24, 2009) explained that Bion believed that the unconscious was unfinished and that we are required to engage with it in order to finish it. Due to the inductive nature of Grounded Theory methodology, the researcher is advised to forget about what is known about the topic of study and to begin to collect data from all sources available. Throughout the process, the researcher is to engage in constant comparison of data, codes, and eventually concepts and core categories to determine relationships amongst the data. Once the process is complete, and the grounded theory for each core category has been written, the next step is to begin the application process. In their discussion of the application of generated grounded theory, Glasser and Strauss (1967) explained that the process is always undone, never complete. The next step is to apply the generated theory to everyday problems and to continue filling out the theory with relevant literature, empirical, and clinical data to allow for a natural evolution, and if needed, modification of the original product. They stated, "the person who applies theory becomes, in effect, a generator of theory, and in this instance the theory is clearly seen as a process; an ever-developing entity (Glasser & Strauss, p. 242).

With this in mind, one could consider the products of this contribution to be an arena for ever-evolving theory, questions, and inductively derived hypotheses to be generated. The concepts and core categories synthesized in this dissertation could provide valuable models to be contemplated and tested in clinical practice as well as in various forms of research. Given the undone nature of the grounded theory presented, it is also necessary and prudent to look to other fields of inquiry in order to refine. It is recommended that the fields of attachment, neuroscience, medical, developmental, and infant observation be involved and consulted when applying these theories as the literature and research available in these areas will provide rich data from which to draw from that could no doubt help to augment the available theory or even in some cases disprove it. Developmental literature has helped to support some of the data presented in the Mother's Mind, The Experience of Sound, Prenatal Trauma, Proto-Mental Processing, and Treatment sections of this dissertation, providing an interesting context for integration of psychoanalytic theory and developmental empirical findings. Ultimately, there must be a working alliance amongst the many fields related to prenatal development that will allow for friendly collaboration and development of the various fields.

Future areas of research in the field of prenatal psychic experience should focus on a number of issues. The utilization of psychoanalytic theory in medical situations could serve to be a most important measure, especially when the concern is with premature babies. The developmental research provides strong evidence to suggest that prenatal stress influences preterm labor and psychoanalytic theory offers viable models for clinicians and medical professionals alike to be able think about the emotional

situation of the premature infant and to base their interventions. For instance, Szejer (2005) discussed the use of kangaroo units in France that has become commonplace throughout the country. Typically in America, premature babies are often sequestered on another unit, sometimes on another floor, in incubators away from most human contact and usually away from the mother for most of the day. Kangaroo units are set up in such a way that allows for more consistent contact, sometimes skin to skin contact, but definitely emotional contact with the mother. The mother is encouraged to talk to her baby and in cases where Dr. Szejer is referred, the story of what has occurred, based on mother's report of her history and her pregnancy, is related to the baby. Future research needs to be focused on this area.

Given Piontelli's contributions of ultrasound observation and her research that has shown how character as well as trauma and problematic issues in utero can continue in the postnatal, it seems that intervention, beyond the usual medical procedures, could be augmented to include thoughtful considerations of the emotional life of the premature baby and how these variables can significantly influence recovery and one's willingness to fight and to thrive. Prevention studies could also contribute to these issues, as identification of risk factors in the pregnant mother and in the fetus could help to improve assessment of the emotional condition of the mother/fetus couple. Numerous factors related to maternal stress, prenatal stress, and chemical reactions of the two have been linked to such things as preterm labor, postnatal distress in the infant, hyperactivity in the infant and child, postnatal relations between mother and infant, attachment style, autism and schizophrenia to name a few. Further research in this area is crucial as we now have

the technology and the opportunity to begin intervention and to improve preventative measures much earlier in the gestation process.

There were a number of themes that emerged throughout this dissertation, one of which was the idea of innate capacity. Horner (1992) and Szejer (1995) suggested an inherent agency of the embryo that seeks to make contact with the mother's womb in an attempt to preserve life and to perpetuate development. Maiello (1995) posited that the fetus has a rudimentary capacity to attend to and to create memories of the sound qualities of the mother's voice that leads to a pre-conception of the postnatal breast. The theories of Tustin (1994), Maiello (1997; 2001), and Rosenfeld (1987) suggest that the fetus can learn to expect shock from interaction with the mother in the postnatal based on its experience during gestation and Mancia (1981) hypothesized the formation of a proto-mental nucleus that aids in the formulation of internal representations, pre-conceptions, and psychic skin that is a precursor to containment in the postnatal. Bion (1962) offered his theory of pre-conceptions and Grotstein (2007a; 2009) utilized this theory to proffer his idea of *inchoate alpha function* in the infant at birth. Grotstein (2009) also discussed the existence of a phylogenetic and dynamic unconscious while Chuster (2010) suggested that *radical imagination* is the most primitive mental state that began millions of years ago as the human mind evolved. Finally, Van Buren (2010) discussed the existence of Bion's *wild thoughts* and suggested that right brain communication provides us access to *primitive wave bands* of experience that are characterized by non-verbal communication and massive projective identification.

McPherson (2006) discussed the existence of innate qualities and suggested that the fetus and infant is mandated to develop because of *evolutionary pressure* that allows

the embryo, fetus, and then the infant to survive and thrive in the world. While McPherson was most concerned with the fetus' experience of sound and inborn musical capabilities, others have offered psychoanalytic theories, mostly inspired by the work of Bion, related to these capacities that provides interesting contexts to contemplate the origins and layers of the human mind (Wilheim, 2010; Imbasciati, 2004; Grotstein, 2009; Paul, 1976; Chuster, 2010; and Van Buren, 2010). One interesting concept is Grotstein's (2009) extension of the Aristotelian idea of *entelechy* which refers to *the actualization of one's inborn potential*. Grotstein explained:

Each sentient entity contains its own entire universe within itself. It is the ever-burgeoning life force (vitalism) that impinges on one's personality from within. A tree, for instance, is the entelechy of the acorn, and the accomplished adult is the entelechy of the embryo/fetus/infant/child... We defend not only against the truth drive, consequently, but also against our ever-irrupting entelechy which always beckons us to fulfill our inborn potential. We become aware of our entelechy as we age – when the “General Accounting Office” of our ego ideal reminds us of the growing discrepancy between what we have accomplished and what we legitimately could have accomplished. (p. 79-80)

Grotstein (2009, conference New Center for Psychoanalysis, October 24, 2009) explained that the entelechy of the 12 year-old girl is to move into puberty. In essence, she is pushed by biology into her new body self. Theories that provide contexts to think about innate human potential and capacity are required in the fields of both psychology and psychoanalysis as they help us make sense of aspects of our experience that otherwise might remain unobservable. Future research could be focused on not only the extension

of the theories mentioned above, but also new ideas that help us to think, in the Bionian sense, about the layers of the human mind and experience and to consider more deeply the development of the most vulnerable such as the human fetus.

Finally, the role of fathers should be explored in future research. Freud (1987) explained that in addition to girls' wishes and phantasies, boys seem to wish for babies too. Their role in the creation of the child is undeniable, but the father's experience and influence of pregnancy seems to be reduced once conception has taken place. Freud cited numerous studies that have shown how good fathers tend to have had good fathers and their role in creating and maintaining a holding environment for the pregnant mother and the fetus should be more acknowledged and better understood. Liebenberg (1973, as cited in Freud, 1987) reported that 65 percent of her sample of fathers developed *pregnancy symptoms* such as fatigue, nausea, backache, headaches, vomiting, or peptic ulcers. Several gained weight along with the mother only to lose it after the pregnancy, and several quite smoking and claimed that it was for the baby. Kay (1984) argued that fathers play a crucial role in the pregnancy as he is in the position to provide valuable support to the mother which can have a significant effect on her emotional state and to the extent that he talks to his baby throughout gestation he can have an influence on future father/infant relations as the fetus has been shown to be able to discriminate between mother's and father's voice. His soothing talk to his unborn child can lead to opportunities of containment after birth, especially when the mother is in need of a break.

Conclusion

The psychoanalytic understanding of prenatal psychic experience has evolved considerably since the 1970's and 1980's. Culbert-Koehn (1997) suggested that in the

coming years in psychoanalysis, new distinct areas will develop related to *perinatal*, *intra-uterine*, or *umbilical* transferences that will require a clearer understanding of the emotional life of the fetus. Throughout the world, a number of organizations have emerged such as Szejer's *La Cause des Bébés* (In the Interests of the *Baby*) in France, Wilhelm's *Brazilian Association for the Study of Pre- and Perinatal Psychism* (ABREP, in Portuguese), the *International Society for Prenatal and Perinatal Psychology Association of North America* (PPANA), and the *Thrive* group in Los Angeles sponsored by The New Center For Psychoanalysis and the Psychoanalytic Center of California whose sole interest is for the study of the fetus and baby. Robinson (2010) suggested that investigation into the prenatal will require us to develop new concepts or to extend and refine old ones to integrate new knowledge gained through research and observation of prenatal states in analytic treatments. The work of Bion, will no doubt continue to help generate creativity and to inspire new *imaginative conjectures* in theoreticians and practitioners of psychoanalysis. As Grotstein (2007b) suggested, "the psychoanalytic world has yet to realize the clinical and theoretical importance of Bion's ideas about prenatal mental life and its postnatal consequences" (p. 257).

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Sample Data Point Analysis

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|---------------------------------------|---|
| Resource: | Piontelli, A. (1987). Infant observation from before birth. <i>International Journal of Psycho-Analysis</i> , 68, 453-463. |
| Psychoanalytic Paradigm | Fetus observation via ultrasound techniques Infant Observation |
| Themes | Extension of infant observation to prenatal life; Showing a continuum one can expect to find before and after birth; What is genetic and inherited and what is environmental? Highlighting the complexities and differences at play in the shaping of every human being; Detecting elements of character and personality in utero. |
| Observations/Clinical Material | <p>In child treatment, Piontelli observed frequent and concrete fantasies on life before birth. For some more withdrawn and regressed young children, it seemed to be beyond fantasy where there was a living and reliving in the past as a permanent mode of being. In her initial observations of fetuses in their natural environment via ultrasound techniques, she was struck by the richness, complexity, freedom, and individuality of movement that could be observed from very early stages before the mother was aware. Each seemed to have a different personality reacting differently to its own intrauterine environment. Parents, obstetricians, and family alike seemed to form attitudes and reactions to the fetus' behavior: "he is nervous," "this one will become a dancer," "he is calm," "look how badly he treats the cord."</p> <p>Case A: mother's and father's attitude was indifferent and cynical toward fetus, more worried about the birth. Fetus was observed to be licking the placenta, moving her tongue constantly, rocking self to what seemed to be sleep, moving fingers and hands with great skill. Birth was difficult with 24 hours of labor. Mother stated that the baby was "too comfortable there...she didn't want to come out and let go." Mother showed marked irritation with infant's preference of licking the breast instead of sucking it. The infant displayed behaviors of licking, rocking for soothing, skilled hand and eventually motor behavior, constant hunt for pleasure and food.</p> <p>Case B: mother was very anxious having nightmares about pregnancy. Family was most concerned with the sex of the fetus. Fetus was immobile, tightly crunched in the corner of the womb, hands and arms covering face, seemed to be tense. Hard to observe, the only clearly visible thing was his sex. Birth was through caesarian. Obstetrician had trouble</p> |

Sample Data Point Analysis

| | |
|--|--|
| | retrieving the baby from being crumpled in the corner of the womb. Infant was immobile with a fixed sad look as if he was “100 years old.” Infant clung to breast for hours during feeding. As he got older, preferred to sit in the corner always holding the same toy and never moved about. |
| Arguments/Conclusions | <p>Psychoanalysts are most concerned with fetal movements and its responses to the environment.</p> <p>Maternal emotions can be directly felt by the fetus through changes in arterial pressure or through substances that can cross the placental barrier (i.e. catecholamines, alcohol, ingestion of drugs, smoking);</p> <p>Maternal borborigmi, maternal voice, heart beats, bruits of blood supplying the uterus and placenta are all heard by the fetus;</p> <p>Striking continuum of “behavior one can observe in life before and after birth and such continuity seems to be in tune with the brilliant intuitions of several figures of the past”;</p> <p>Freud (1926): continuity between intra-uterine life and earliest infancy; Klein: “always maintained that children were born with character and that mental life was already present at birth”; Bion: “always stressed the importance of our unknown past”.</p> <p>This research seems to be pointing to the possibility of detecting markers of character already in utero.</p> |
| Ancestry/Suggested via consultation | <p>De Vries, J.I.P. (1982). The emergency of fetal behaviour. <i>I Qualitative aspects Early Human Development</i>, 7, 301-322.</p> <p>Timor-Tritsch, I. et al. (1978). Studies of antepartum behavioural state in the human fetus at term. <i>American Journal of Obstetrics Gynaecology</i>, 130, 693.</p> |
| Categories | <p>Detecting markers of character and personality in utero.</p> <p>Observing continuums between before and after birth.</p> <p>Observing the fetus’ response to their environment</p> |
| Sub-Categories | The importance of movement in utero on development. |

Overview of Sources and Core Categories

| | Author(s) | Title | Date | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Constructs |
|----|--------------------------|--|------|---|---|---|---|---|---|---|------------|
| 1 | Apprey | Projective identification and maternal misconception in disturbed mothers. | 1987 | | √ | | | | | √ | 2, 7 |
| 2 | Arnott & Meins | Continuity in mind-mindedness from pregnancy to the first year of life. | 2008 | | √ | | | | | | 2 |
| 3 | Beebe & Lackmann | Representation and internalization in infancy: Three principles of salience. | 1994 | | | | | √ | | | 5 |
| 4 | Beniot, Parker, & Zeanah | Mothers' representations of their infants assessed prenatally. | 1997 | | √ | | | | | | 2 |
| 5 | Bergner, Monk, & Werner | Dyadic intervention during pregnancy? Treating pregnant women and possibly reaching the future baby. | 2008 | | √ | | | | | √ | 2, 7 |
| 6 | Bick | The experience of the skin in early object-relations. | 1968 | | | | √ | √ | | √ | 4, 5, 7 |
| 7 | Bion | The Psycho-Analytic Study of Thinking | 1962 | | √ | √ | | √ | | | 2, 3, 5 |
| 8 | Bion | On a Quotation from Freud | 1976 | √ | | | | | | √ | 1, 7 |
| 9 | Bion | Two Papers: The Grid and Caesura | 1977 | | | √ | | | | √ | 3, 7 |
| 10 | Carter-Jessop & Keller | Early Maternal Bonding | 1987 | | √ | | | | | | 2 |
| 11 | Child | Prenatal Language | 1998 | | | √ | | | | | 3 |
| 12 | Chuster | The origins of the unconscious: Framework of the future mind. | 2010 | | | | | √ | | | 5 |
| 13 | DeCasper & Fifer | Of Human Bonding: Newborns prefer their mother's voices. | 1980 | | | √ | | | | | 3 |
| 14 | DeCasper & Spence | Prenatal Maternal Speech Influences Newborn's Perception of Speech Sound | 1986 | | | √ | | | | | 3 |
| 15 | Deutsch | The Psychology of Women | 1945 | | √ | | | | | | 2 |

table continues

Note: 1 = Conception; 2 = Mother's Mind; 3 = The Experience of Sound and Early Object Relations; 4 = Prenatal Trauma and Protective Reactions in Utero; 5 = Proto-Mental Processing, Pre-conceptions, Inchoate Alpha Function; and the Origins of the Unconscious; 6 = The Experience of Pressure and Prenatal Transferences; 7 = Applications to Treatment

Overview of Sources and Core Categories

| | | | | | | | | | | | | |
|----|--|---|-------|---|---|---|---|---|--|---|--|------------|
| 16 | DiPietro | The role of prenatal maternal stress in child development. | 2004 | | √ | | | | | | | 2 |
| 17 | Dye | Human life before birth. | 2000 | √ | | | | | | | | 1 |
| 18 | Fava-Vizziello, Antonioli, Cocci, & Invernizzi | From pregnancy to motherhood: The structure of representative narrative change. | 1993 | | √ | | | | | | | 2 |
| 19 | Field | The amazing infant. | 2007 | | √ | | √ | √ | | √ | | 2, 4, 5, 7 |
| 20 | Frank, Tuber, Slade & Garrod | Mother's fantasy representation and infant secure attachment: A Rorschach study of first pregnancy. | 1994 | | √ | | | | | | | 2 |
| 21 | Goldberger | Pregnancy during analysis – help or hindrance? | 1991 | | | | | | | √ | | 7 |
| 22 | Gordon | The vulnerable mother and her child. | 1978 | | √ | | | | | | | 2 |
| 23 | Grotstein | Inner space: Its dimensions and its coordinates. | 1978 | | | √ | | √ | | | | 3, 5 |
| 24 | Grotstein | Who is the dreamer who dreams the dream and who is the dreamer who understands it – A psychoanalytic inquiry into the ultimate nature of being. | 1979 | | | | | √ | | | | 5 |
| 25 | Grotstein | A proposed revision of the psychoanalytic concept of primitive mental states – Part I. Introduction to a newer psychoanalytic metapsychology. | 1980 | | | | | √ | | | | 5 |
| 26 | Grotstein | Wilfred r. bion: - The man, the psychoanalyst, the mystic. A perspective on his life and work | 1981a | | | | | √ | | | | 5 |
| 27 | Grotstein | Splitting and Projective Identification | 1981b | | | | | √ | | | | 5 |
| 28 | Grotstein | Deciphering the schizophrenic experience. | 1983 | | √ | | √ | | | | | 2, 4 |

table continues

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Overview of Sources and Core Categories

| | | | | | | | | | | | |
|----|-----------|--|-------|---|---|--|---|---|--|---|------|
| 29 | Grotstein | A proposed revision of the psychoanalytic concept of primitive mental states, part II – The borderline syndrome –section 2 the phenomenology of the borderline syndrome 2. | 1984 | | √ | | √ | | | | 2, 4 |
| 30 | Grotstein | The ‘Black Hole’ as the basic psychotic experience. | 1990a | | | | √ | | | | 4 |
| 31 | Grotstein | Nothingness, meaninglessness, chaos, and the “black hole” I – The importance of nothingness, meaninglessness, and chaos in psychoanalysis. | 1990b | | | | √ | | | | 4 |
| 32 | Grotstein | Nothingness, meaningless, chaos, and the “black hole” III – Self – and interactional regulation and the background presence of primary identification. | 1991 | | | | √ | | | | 4 |
| 33 | Grotstein | Fetal mental life and its caesura with postnatal mental life. | 2007 | √ | | | | √ | | | 1, 5 |
| 34 | Grotstein | A beam of intense darkness: Wilfred bion’s legacy to psychoanalysis | 2007 | | | | | √ | | √ | 5, 7 |
| 35 | Grotstein | Personal communication | 2008 | | | | | √ | | | 5 |
| 36 | Grotstein | Personal communication | 2009 | | | | | √ | | | 5 |
| 37 | Grotstein | “...But at the same time and on another level...”: Psychoanalytic theory and technique in the klianian/bionian mode, Volume I. | 2009 | | | | | √ | | √ | 5, 7 |
| 38 | Hepper | Fetal psychology: An embryonic science. | 1992 | | | | √ | | | | 3 |
| 39 | Hepper | Fetal memory. Does it exist? | 1996 | | | | √ | | | | 3 |

table continues

Note: 1 = Conception; 2 = Mother’s Mind; 3 = The Experience of Sound and Early Object Relations; 4 = Prenatal Trauma and Protective Reactions in Utero; 5 = Proto-Mental Processing, Pre-conceptions, Inchoate Alpha Function; and the Origins of the Unconscious; 6 = The Experience of Pressure and Prenatal Transferences; 7 = Applications to Treatment

Overview of Sources and Core Categories

| | | | | | | | | | | | | |
|----|--|--|------|---|---|---|---|---|--|--|--|---------|
| 40 | Hesse & Main | Frightened, threatening and dissociative parental behavior in low-risk samples: Description, discussion and interpretations. | 2006 | | √ | | | | | | | 2 |
| 41 | Holmes | The object within: Childbirth as a developmental milestone. | 2000 | √ | √ | | | | | | | 1, 2 |
| 42 | Horner | The origin of the symbiotic wish. | 1992 | √ | | | | | | | | 1 |
| 43 | Imbasciati | A theoretical support for transgenerationality: The theory of the protomental. | 2004 | | √ | | | √ | | | | 2, 5 |
| 44 | Kay | Foetal psychology and the analytic process. | 1984 | | √ | | | √ | | | | 2, 5 |
| 45 | Kisilevsky et al. | Fetal sensitivity to properties of maternal speech and language. | 2009 | | | √ | | | | | | 3 |
| 46 | Krokoff, Gottman, & Sass | Validation of a global rapid couples interaction scoring system. | 1989 | | | √ | | | | | | 3 |
| 47 | Lecanuet | Prenatal auditory experience. | 1996 | | | √ | | | | | | 3 |
| 48 | Lecanuet, Granier-Deferre, & De Casper | Are we expecting too much from prenatal sensory experiences? | 2005 | | | √ | | | | | | 3 |
| 49 | Lipovetsky | Womb Speak | 2009 | | | √ | | | | | | 3 |
| 50 | Lipovetsky | Personal communication | 2010 | | | √ | | | | | | 3 |
| 51 | Maiello | The sound object: A hypothesis about prenatal auditory experience and memory. | 1995 | | | √ | √ | √ | | | | 3, 4, 5 |
| 52 | Maiello | Prenatal trauma and autism. | 2001 | | | | √ | | | | | 3 |
| 53 | Maiello | Going beyond. Notes on the beginning of object relations in the light of "The perpetuation of an error." | 1997 | | | | √ | | | | | 3 |
| 54 | Mancia | On the birth of the self. | 1989 | | | | | √ | | | | 5 |
| 55 | Mancia | On the beginning of | 1981 | | √ | | | √ | | | | 2, 5 |

table continues

Note: 1 = Conception; 2 = Mother's Mind; 3 = The Experience of Sound and Early Object Relations; 4 = Prenatal Trauma and Protective Reactions in Utero; 5 = Proto-Mental Processing, Pre-conceptions, Inchoate Alpha Function; and the Origins of the Unconscious; 6 = The Experience of Pressure and Prenatal Transferences; 7 = Applications to Treatment

Overview of Sources and Core Categories

| | | | | | | | | | | | |
|----|-------------------------|---|-------|--|---|---|---|---|---|---|---------|
| | | mental life in the foetus. | | | | | | | | | |
| 56 | Mastropieri & Turkewitz | Prenatal experience and neonatal responsiveness to vocal expressions of emotion. | 1999 | | | √ | | | | | 3 |
| 57 | McPherson | The child as musician | 2006 | | √ | √ | √ | | | | 2, 3, 4 |
| 58 | Mills | Deciphering the “genesis problem”: On the dialectical origin of psychic reality. | 2002 | | | | | √ | | | 5 |
| 59 | Moon, Cooper, & Fifer | Two-days-old infants prefer their native language. | 1993 | | | √ | | | | | 3 |
| 60 | Ogden | On the concept of an autistic-contiguous position. | 1989 | | | | √ | | | | 4 |
| 61 | Osterweil | Notes on the vicissitudes of intrauterine life. | 2002 | | | | | √ | | | 5 |
| 62 | Paul | Introduction. Before we were young. | 1997a | | √ | | | | | | 2 |
| 63 | Paul | A mental atlas of the process of psychological birth. | 1981 | | | | | | √ | √ | 6, 7 |
| 64 | Paul | The sense of strangeness. | 1976 | | | | | | √ | | 6 |
| 65 | Paul | Primordial development of the penitential transference. | 1997b | | | | | | √ | √ | 6, 7 |
| 66 | Paul | Studies on the phenomenology of mental pressure. | 1997c | | | | | | √ | | 6 |
| 67 | Paul | Personal communication | 2010 | | | | | | √ | √ | 6, 7 |
| 68 | Pines | A woman’s unconscious use of her body. | 1994 | | √ | | | | | | 2 |
| 69 | Piontelli | Autism and prenatal studies | 1993 | | | | √ | √ | | √ | 4, 5, 7 |
| 70 | Piontelli | Pre-natal life and birth as reflected in the analysis of a 2-year-old psychotic girl. | 1988 | | | | | | | √ | 7 |
| 71 | Piontelli | Infant observation from before birth. | 1987 | | √ | | | √ | | √ | 2, 5, 7 |
| 72 | Piontelli | From fetus to child. An observational and psychoanalytic study. | 1992 | | √ | | | | | √ | 2, 7 |

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Overview of Sources and Core Categories

| | | | | | | | | | | | |
|----|---------------------------|--|------|---|---|---|---|---|--|---|---------|
| 73 | Piontelli | A study on twins before and after birth. | 1989 | | | | | | | √ | 7 |
| 74 | Ploye | The prenatal theme in psychotherapy. | 2006 | √ | | | | | | √ | 1, 7 |
| 75 | Ploye | Does prenatal mental life exist? | 1973 | √ | | | | | | √ | 1, 7 |
| 76 | Prechtl | The behavioral states of the newborn infant. | 1974 | | | √ | | | | | 3 |
| 77 | Querleu, Renard, & Crepin | Auditory perception and fetal reaction to react to sound stimulation. | 1981 | | | √ | | | | | 3 |
| 78 | Raphael-Leff | Psychotherapeutic needs of mothers-to-be. | 1982 | | | | | | | √ | 7 |
| 79 | Raphael-Leff | Pregnancy – procreative process, the “placental paradigm,” and perinatal therapy. | 1996 | | √ | | | | | √ | 2, 7 |
| 80 | Robinson | A binocular view of adhesion: From prenatal contiguity to postnatal appetite. | 2010 | | | | | | | √ | 7 |
| 81 | Rogers et al. | A multi-institutional study of factors associated with fetal death in injured pregnant patients. | 1999 | | | | √ | | | | 4 |
| 82 | Rosenfeld | Impasse and Interpretation | 1987 | | | | √ | √ | | √ | 4, 5, 7 |
| 83 | Rosner & Doherty | The response of neonates to intrauterine sounds. | 1979 | | | √ | | | | | 3 |
| 84 | Share | “If someone speaks, it gets lighter...” | 1994 | √ | | | | | | | 1 |
| 85 | Smith, et al. | Intelligibility of sentences recorded from the uterus of pregnant ewe and from the fetal ear. | 2003 | | | √ | | | | | 3 |
| 86 | Stern | Diary of a baby. | 1992 | | √ | | | | | | 2 |
| 87 | Szejer | Talking to babies: Healing with words on a maternity ward. | 2005 | √ | | √ | | √ | | | 1, 3, 5 |
| 88 | Tabak de Bianchedi et al. | Prenatals/postnatals: The total personality: A memory of the future of psychoanalysis. | 2002 | | | | | | | √ | 7 |
| 89 | Thomson | “Down will come baby”: Prenatal stress, | 2007 | √ | √ | | | | | √ | 1, 2, 7 |

table continues

Note: 1 = Conception; 2 = Mother’s Mind; 3 = The Experience of Sound and Early Object Relations; 4 = Prenatal Trauma and Protective Reactions in Utero; 5 = Proto-Mental Processing, Pre-conceptions, Inchoate Alpha Function; and the Origins of the Unconscious; 6 = The Experience of Pressure and Prenatal Transferences; 7 = Applications to Treatment

Overview of Sources and Core Categories

| | | | | | | | | | | | |
|-----|-------------------------------|--|------|---|--|--|---|---|--|---|------|
| | | primitive defenses and gestational dysregulation. | | | | | | | | | |
| 90 | Tronick | The primacy of social skills in infancy. | 1980 | | | | √ | √ | | | 4, 5 |
| 91 | Tronick & Gianino | The transmission of maternal disturbance to the infant. | 1986 | | | | √ | √ | | | 4, 5 |
| 91 | Tronick & Gianino | The transmission of maternal disturbance to the infant. | 1986 | | | | √ | √ | | | 4, 5 |
| 92 | Tronick, Adamson, & Brazelton | The infant's response to entrapment between contradictory messages in face to face interaction | 1978 | | | | √ | √ | | | 4, 5 |
| 92 | Tronick, Adamson, & Brazelton | The infant's response to entrapment between contradictory messages in face to face interaction | 1978 | | | | √ | √ | | | 4, 5 |
| 93 | Tustin | Autistic objects | 1980 | | | | √ | | | | 4 |
| 93 | Tustin | Autistic objects | 1980 | | | | √ | | | | 4 |
| 94 | Tustin | Autistic barriers in neurotic patients. | 1986 | | | | √ | | | | 4 |
| 94 | Tustin | Autistic barriers in neurotic patients. | 1986 | | | | √ | | | | 4 |
| 95 | Tustin | The protective shell in children and adults. | 1990 | | | | √ | | | | 4 |
| 96 | Tustin | Psychological birth and psychological catastrophe. | 1981 | | | | √ | | | | 4 |
| 97 | Tustin | The perpetuation of an error. | 1994 | | | | √ | | | | 4 |
| 98 | Van Buren | The emergence of the ineffable. | 2002 | | | | | √ | | √ | 5, 7 |
| 99 | Van Buren | Discovery of mother's body and the creation of the daughter's subjectivity. | 2005 | | | | | √ | | | 5 |
| 100 | Van Buren | Thoughts without a thinker. | 2010 | | | | | √ | | √ | 5, 7 |
| 101 | Weismann | A theory of hereditary. | 1893 | √ | | | | | | | 1 |
| 102 | Wilhelm | The trauma of conception: Cellular memory. | 2010 | √ | | | | | | | 1 |

table continues

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Conception

| | Author(s) | Title | Date | 1 |
|-----|-----------|---|------|---|
| 8 | Bion | On a Quotation from Freud | 1976 | √ |
| 17 | Dye | Human life before birth. | 2000 | √ |
| 33 | Grotstein | Fetal mental life and its caesura with postnatal mental life. | 2007 | √ |
| 41 | Holmes | The object within: Childbirth as a developmental milestone. | 2000 | √ |
| 42 | Horner | The origin of the symbiotic wish. | 1992 | √ |
| 74 | Ploye | The prenatal theme in psychotherapy. | 2006 | √ |
| 75 | Ploye | Does prenatal mental life exist? | 1973 | √ |
| 84 | Share | “If someone speaks, it gets lighter...” | 1994 | √ |
| 87 | Szejer | Talking to babies: Healing with words on a maternity ward. | 2005 | √ |
| 89 | Thomson | “Down will come baby”: Prenatal stress, primitive defenses and gestational dysregulation. | 2007 | √ |
| 101 | Weismann | A theory of hereditary. | 1893 | √ |
| 102 | Wilheim | The trauma of conception: Cellular memory. | 2010 | √ |

Mother's Mind

| | Author(s) | Title | Date | 2 |
|----|--|--|------|---|
| 1 | Apprey | Projective identification and maternal misconception in disturbed mothers. | 1987 | √ |
| 2 | Arnott & Meins | Continuity in mind-mindedness from pregnancy to the first year of life. | 2008 | √ |
| 4 | Beniot, Parker, & Zeanah | Mothers' representations of their infants assessed prenatally. | 1997 | √ |
| 5 | Bergner, Monk, & Werner | Dyadic intervention during pregnancy? Treating pregnant women and possibly reaching the future baby. | 2008 | √ |
| 7 | Bion | The Psycho-Analytic Study of Thinking | 1962 | √ |
| 10 | Carter-Jessop & Keller | Early Maternal Bonding | 1987 | √ |
| 15 | Deutsch | The Psychology of Women | 1945 | √ |
| 16 | DiPietro | The role of prenatal maternal stress in child development. | 2004 | √ |
| 18 | Fava-Vizziello, Antonioli, Cocci, & Invernizzi | From pregnancy to motherhood: The structure of representative narrative change. | 1993 | √ |
| 19 | Field | The amazing infant. | 2007 | √ |
| 20 | Frank, Tuber, Slade & Garrod | Mother's fantasy representation and infant secure attachment: A Rorschach study of first pregnancy. | 1994 | √ |
| 22 | Gordon | The vulnerable mother and her child. | 1978 | √ |
| 28 | Grotstein | Deciphering the schizophrenic experience. | 1983 | √ |
| 29 | Grotstein | A proposed revision of the psychoanalytic concept of primitive mental states, part II – The borderline syndrome –section 2 the phenomenology of the borderline syndrome 2. | 1984 | √ |
| 40 | Hesse & Main | Frightened, threatening and dissociative parental behavior in low-risk samples: Description, discussion and interpretations. | 2006 | √ |
| 41 | Holmes | The object within: Childbirth as a developmental milestone. | 2000 | √ |
| 43 | Imbasciati | A theoretical support for transgenerationality: The theory of the protomental. | 2004 | √ |
| 44 | Kay | Foetal psychology and the analytic process. | 1984 | √ |
| 55 | Mancia | On the beginning of mental life in the foetus. | 1981 | √ |
| 57 | McPherson | The child as musician | 2006 | √ |

Mother's Mind

| | | | | |
|----|--------------|---|-------|---|
| 62 | Paul | Introduction. <i>Before we were young.</i> | 1997a | √ |
| 68 | Pines | A woman's unconscious use of her body. | 1994 | √ |
| 71 | Piontelli | Infant observation from before birth. | 1987 | √ |
| 72 | Piontelli | From fetus to child. An observational and psychoanalytic study. | 1992 | √ |
| 79 | Raphael-Leff | Pregnancy – procreative process, the “placental paradigm,” and perinatal therapy. | 1996 | √ |
| 86 | Stern | Diary of a baby. | 1992 | √ |
| 89 | Thomson | “Down will come baby”: Prenatal stress, primitive defenses and gestational dysregulation. | 2007 | √ |

The Experience of Sound and Early Object Relations

| | Author(s) | Title | Date | 3 |
|----|--|---|------|---|
| 7 | Bion | The Psycho-Analytic Study of Thinking | 1962 | √ |
| 9 | Bion | Two Papers: The Grid and Caesura | 1977 | √ |
| 11 | Child | Prenatal Language | 1998 | √ |
| 13 | DeCasper & Fifer | Of Human Bonding: Newborns prefer their mother's voices. | 1980 | √ |
| 14 | DeCasper & Spence | Prenatal Maternal Speech Influences Newborn's Perception of Speech Sound | 1986 | √ |
| 23 | Grotstein | Inner space: Its dimensions and its coordinates. | 1978 | √ |
| 38 | Hepper | Fetal psychology: An embryonic science. | 1992 | √ |
| 39 | Hepper | Fetal memory. Does it exist? | 1996 | √ |
| 45 | Kisilevsky et al. | Fetal sensitivity to properties of maternal speech and language. | 2009 | √ |
| 46 | Krokoff, Gottman, & Sass | Validation of a global rapid couples interaction scoring system. | 1989 | √ |
| 47 | Lecanuet | Prenatal auditory experience. | 1996 | √ |
| 48 | Lecanuet, Granier-Deferre, & De Casper | Are we expecting too much from prenatal sensory experiences? | 2005 | √ |
| 49 | Lipovetsky | Womb Speak | 2009 | √ |
| 50 | Lipovetsky | Personal communication | 2010 | √ |
| 51 | Maiello | The sound object: A hypothesis about prenatal auditory experience and memory. | 1995 | √ |
| 56 | Mastropieri & Turkewitz | Prenatal experience and neonatal responsiveness to vocal expressions of emotion. | 1999 | √ |
| 57 | McPherson | The child as musician | 2006 | √ |
| 59 | Moon, Cooper, & Fifer | Two-days-old infants prefer their native language. | 1993 | √ |
| 76 | Prechtl | The behavioral states of the newborn infant. | 1974 | √ |
| 77 | Querleu, Renard, & Crepin | Auditory perception and fetal reaction to react to sound stimulation. | 1981 | √ |
| 83 | Rosner & Doherty | The response of neonates to intrauterine sounds. | 1979 | √ |
| 85 | Smith, et al. | Intelligibility of sentences recorded from the uterus of pregnant ewe and from the fetal ear. | 2003 | √ |
| 87 | Szejer | Talking to babies: Healing with words on a maternity ward. | 2005 | √ |

Prenatal Trauma and Protective Reactions in Utero

| | Author(s) | Title | Date | 4 |
|----|-------------------|--|-------|---|
| 6 | Bick | The experience of the skin in early object-relations. | 1968 | √ |
| 19 | Field | The amazing infant. | 2007 | √ |
| 28 | Grotstein | Deciphering the schizophrenic experience. | 1983 | √ |
| 29 | Grotstein | A proposed revision of the psychoanalytic concept of primitive mental states, part II – The borderline syndrome –section 2 the phenomenology of the borderline syndrome 2. | 1984 | √ |
| 30 | Grotstein | The ‘Black Hole’ as the basic psychotic experience. | 1990a | √ |
| 31 | Grotstein | Nothingness, meaninglessness, chaos, and the “black hole” I – The importance of nothingness, meaninglessness, and chaos in psychoanalysis. | 1990b | √ |
| 32 | Grotstein | Nothingness, meaningless, chaos, and the “black hole” III – Self – and interactional regulation and the background presence of primary identification. | 1991 | √ |
| 51 | Maiello | The sound object: A hypothesis about prenatal auditory experience and memory. | 1995 | √ |
| 52 | Maiello | Prenatal trauma and autism. | 2001 | √ |
| 53 | Maiello | Going beyond. Notes on the beginning of object relations in the light of “The perpetuation of an error.” | 1997 | √ |
| 57 | McPherson | The child as musician | 2006 | √ |
| 60 | Ogden | On the concept of an autistic-contiguous position. | 1989 | √ |
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| 93 | Tustin | Autistic objects | 1980 | √ |
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| 97 | Tustin | The perpetuation of an error. | 1994 | √ |

Proto-Mental Processing, Pre-Conceptions, Inchoate Alpha Function, and the

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| 34 | Grotstein | A beam of intense darkness: Wilfred bion's legacy to psychoanalysis | 2007 | √ |
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| 51 | Maiello | The sound object: A hypothesis about prenatal auditory experience and memory. | 1995 | √ |
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| 58 | Mills | Deciphering the “genesis problem”: On the dialectical origin of psychic reality. | 2002 | √ |
| 61 | Osterweil | Notes on the vicissitudes of intrauterine life. | 2002 | √ |
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| 63 | Paul | A mental atlas of the process of psychological birth. | 1981 | √ |
| 65 | Paul | Primordial development of the penitential transference. | 1997 b | √ |
| 66 | Paul | Studies on the phenomenology of mental pressure. | 1997 c | √ |
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| 5 | Bergner, Monk, & Werner | Dyadic intervention during pregnancy? Treating pregnant women and possibly reaching the future baby. | 2008 | √ |
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| 88 | Tabak de Bianchedi et al. | Prenatals/postnatals: The total personality: A memory of the future of psychoanalysis. | 2002 | √ |
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