Two Voices from the Womb: Evidence for a Physically Transcendent and a Cellular Source of Fetal Consciousness

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Abstract: In recent years, prenatal research has demonstrated that fetuses are far more sophisticated than previously thought, findings generally ignored by the medical and psychological establishment in part because the neurological structures traditionally associated with mentation were not believed to be functional. Recent research on memory suggests that consciousness may not be dependent on the central nervous system, or even on the body. Using each major theory of memory and neurological research to examine the prenatal data, this paper concludes that two sources of consciousness are present before and during birth constructing a single subjective experience of self.

Summary: The full range of prenatal data cannot be explained using conventional medical models. The three current schools of memory theory are presented, and findings suggesting sophisticated pre- and perinatal functioning (especially veridical "anomalous" findings) are examined through the lens of each memory theory for their adequacy in accounting for the data. Verbatim transcripts and veridical memories showing complex mentation and extrasensory knowledge suggest a non-physical source of fetal consciousness interacting with a physically-based source, a finding congruent with current neurological theory. Such a conclusion would fit with the new paradigm emerging in the physical sciences.

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Historically fetal research has treated physical evolution because the mechanics for prenatal consciousness--and ways to measure it--were not thought to exist (Schindler, 1988). This attitude has been slow to change in psychological circles. Even recent developmentalists, such as Kegan (1982), Wilber (1977, 1995) and Washburn (1988), seem to have adopted the convention that neonatal consciousness resembles the undifferentiated embeddedness associated with life in the womb, despite comprehensive theories of prenatal psychological development by Stanislav Grof (1975, 1985; Grof & Bennett, 1990) and Thomas Verny (1987; Verny & Kelly, 1982).

Both Grof's and Verny's theories focus on the fetal body as the source of conscious experience, even when that focus consistently yields anomalous results. For Grof, images and psychological patterns from intrauterine experience form emotionally-charged systems that color an individual's life (1975, 1985). Although Grof's theory is transpersonal (that is, it acknowledges supraphenomenal elements), he emphasizes the fetus's experience of the womb environment and the birth process. Verny, who charts the evolution of fetal ego, attributes that psychological development largely to intrauterine phenomena that the fetus responds to at a cellular level (such as physiochemical alterations in the amniotic fluids and bloodstream caused by changes in the mother's hormonal tone) (Verny & Kelly, 1982). Yet both these writers are aware that all of the evidence--especially the capacity for conceptual thought and extrasensory impressions--cannot be explained by fetal neurological functioning. Although Grof is not clear about how supraphenomenal memories might be transmitted to the fetal body, Verny suggests that some of the "anomalous" memories must, of necessity, have their origin outside the limits of fetal neurophysiology, as it is currently understood. He postulates two separate but complementary systems for preserving early memories: one reliant on relatively mature central and autonomic nervous system functioning, operative six months after conception; and the other, an "extra-" or "para-" neurological system, which does not seem to obey known laws of chemistry and Newtonian physics (Verny & Kelly, 1982, pp. 191-92).

I will argue that Verny's supposition is correct, and, in fact, that a substantial body of evidence supports the idea of two distinct sources of consciousness in prenatal life. Even though new techniques for direct assessment of fetal and neonatal interactions indicate that the unborn and newly born have more complex mentation than previously thought, other methodologies, primarily regression modalities, reveal degrees of psychological complexity and extrasensory impressions impossible to explain by any fetal cellular structures, no matter how well developed. To date, no single theory has combined these two branches of prenatal research.

If we are to sort out what can legitimately be ascribed to the "smart fetus" depicted in the newer research--that is, the cellular body of the unborn infant--and what cannot, some knowledge of current memory theory is necessary because memory is the very fabric of consciousness and learning (Restak, 1984; Eccles, 1989) and because the extent to which the location of memory can be identified determines the ability to locate the source of consciousness.

The phenomenon of memory is not well understood, and its physiological basis has been debated for decades. Today there are three schools of memory theory that can be grouped according to the location of memory in the body: local (in identifiable structures); non-local (associated with identifiable body structures, but not necessarily reducible to them); and completely non-physical, or transcendent. Each school is supported by a wealth of empirical data, but none of it is conclusive (Gregory, 1987).

In localized models, particular memories are stored in, and transmitted by, particular neuronal circuits (Galluscio, 1990; Bloom, Lazerson & Hofstadter, 1985). According to these theories, memory is a function of the central nervous system, a mechanistic view consistent with the Western medical tradition of specialized physiological parts with distinct functions. Respected scientists still champion localized models (e.g., Dennett, 1991), but technically such theories can only account for prenatal memories when central nervous system processing is fairly mature (for instance, when the fetal brain shows measurable electrochemical activity).

Non-localized models are presently represented by two main theories. One is a holographic model of the central nervous system begun by Lashley's empirical research in the 1940s but whose theoretical rationale only appeared with the advent of holography. This nonlocalized model represents information storage as "a molar property of the mass

of cortical cells, a 'field' rather than a 'point'" (Gregory, 1987, p. 458). Pribram synthesized Lashley's and others' research into a holographic model of the brain (Pribram, 1971, 1991), considered to be a revolutionary advance in neurological theory. Since this nonlocalized theory still associates memory with central nervous system processing, however, it can only account for consciousness when neurological development is fairly advanced. The other current nonlocalized model depends upon biochemical transmitters. One prominent theory contends that RNA, an element in the nuclei of all living cells, not only conveys genetic information but transmits memory as well (Buchheimer, 1987; Rossi, 1990; Dossey, 1989). RNA's ubiquitous presence means that memory is stored *all over the body*, not merely in the central nervous system. Pert's investigations of neuropeptides have bolstered interest in the biochemical transmitter argument (Pert et al., 1985; Rossi, 1990). This theory can account for somatic memories of fetal life before the central nervous system is completely developed and for detailed information regarding the state of the organism, such as the accurate reproduction of birth positioning (e.g., Janov, 1970, 1983; Cheek, 1974, 1975).

Finally as Grof (1985) and Verny suggest (Verny & Kelly, 1982), some eminent medical researchers (e.g., Penfield, 1975; Eccles 1989) incline to a memory model unfettered by material limitations, an idea ventured by Nobel laureate Sir Charles Sherrington in the 1930s. They postulate that the source of memory may have a *temporary* physical expression in the body--perhaps the brain, RNA, neuropeptides, etc.--during life that does not reflect its physically transcendent nature, and they believe that these phenomena will be scientifically confirmed (Josephson & Pallikari-Viras, 1991; Radin & Nelson, 1989). Such a theory is the only one that can account for the complex ideation and validated extrasensory memories in many prenatal records.

Adherence to a particular school of memory theory has shaped the interpretation of the evidence for prenatal consciousness, especially what is believed to be possible during gestation. For instance, in localized models the neural structures necessary for reflective awareness are not sufficiently developed at birth--never mind earlier--to carry out sophisticated cognitive functions (e.g., Schindler, 1988; Restak, 1986), a belief consistent with traditional developmental psychology on infant cognition, such as Piagetian theory. Since each school of memory theory--local, non-local and non-physical (transcendent)--represents increasing degrees of freedom in terms of the amount of data considered legitimate, this paper will treat each group of pre- and perinatal findings

according to the ability of the memory theories to account for them as adequate paradigms, starting with the most traditional.

Local Memory Theory and Pre- and Perinatal Data

Materialists cite the physiological limitations of brain functioning--dominance of lower brain centers, very partial myelination and axonal and dendritic growth, and relatively late measurable brain wave activity--in rejecting findings showing earlier consciousness. And these physiological limitations are real. Although fetal brain cell division is complete as early as 16-20 weeks after gestation, the neonatal brain is only one-fifth the size of the adult brain because it lacks the axons and dendrites that constitute the synaptic networks connecting the neural cell bodies (Greenough, 1987). Higher brain function is thought to depend upon the formation of these billions of intercellular connections, but virtually all of them develop *after* birth. Sporadic bioelectric activity appears in isolated parts of the brain as early as 20 weeks, but bilaterally synchronous EEGS do not occur until the third trimester (Anand & Hickey, 1987). Measurement techniques are sufficiently refined to detect distinctive types of fetal consciousness, such as waking, sleeping, even REM sleep. Without cortical connections, however, the ability for thought and memory is technically quite limited in localized models.

Ontogenetic brain development follows the same phylogenetic evolution shown by the rest of the embryonic body. The brain is neurologically organized into distinct parts that dominate consciousness in sequential order from the most primitive to the most recent (MacLean, 1973, 1990; Luria, 1976, 1980). The hindbrain, consisting of the cerebellum and lower brain stem, is the part most fully developed *in utero*. It is organized for preservation through the regulation of behavioral patterns that are largely innate. Responses to stimuli are "hardwired" or genetically controlled, with virtually no capacity for learning (MacLean, 1973, 1990). The hindbrain is preconceptual, and it dominates awareness early in life when certain types of cortical stimulation by lower brain centers (notably the amygdala) are actually blocked (Pattison & Kahan, 1986). This blocking continues through the first month after birth, meaning that pre- and perinatal behavior, to the extent it is limited to physiologically-based cognitive processing, largely resembles that of a subcortical organism. As brain development continues, neuronal activity increases in progressively higher brain centers.

If traditional psychology has held that neurological immaturity prevented the fetus from being sentient, the backlash by some of the "smart fetus" adherents has tended to overstate prenatal capabilities by describing them in language highly suggestive of conceptual--i.e., neocortically-mediated--thought. Although a number of pre- and perinatal specialists dislike the idea that lower-brain functioning may be dominant in prenatal life (e.g., Tronick & Adamson, 1980), for others it appears that their zeal to correct the old model of the fetus as a blank slate leads to overstatement. The confusion caused by such exuberant language can be quite misleading. For instance, Chamberlain, citing the work of other researchers, says, "Minutes after birth, full-term newborns can imitate adult expressions and gestures. This discovery was doubted for years because such complex cognitive skills were not expected until an infant was at least a year old." (1994, p. 18). A few sentences later, he calls such imitation an "innate" behavior. The two--complex, cognitive skills and innate behavior--are not the same. Innate behaviors are instinctive reactions, not conceptual thoughts. Neonatal imitation can only be a "complex, cognitive skill" when it involves rudimentary concepts, such as self and other, and a deliberate intent to mimic. In this context, Chamberlain's more conservative statement is correct. Species recognition and imitation behaviors are shared by animals with very little neocortical tissue, such as lower mammals, birds and some reptiles (MacLean, 1973, 1990), and a considerable body of ethological research indicates that social imitation is a lower-brain function in humans. Adults with minimal cortical functioning--and even animals--demonstrate the same kinds of imitative socialization and behavioral rituals in reaction to members of their own species (MacLean, 1990; Luria, 1973, 1980; Changeux, 1983/1985). Such hardwired behaviors are, for all intents, automatisms. Rigorous distinctions like this must be drawn in consciousness studies where empirical, nonverbal data are the only kind to be obtained. It is impossible to know from fetal behavior the degree of cognition experienced subjectively without triangulating that information with research from other sources since a given behavior--imitation, in this case--can result from many different levels and kinds of mental activity.

To illustrate this point more dramatically, Chamberlain has collected several accounts of what appear on the surface to be a clear fetal recognition of, and intelligent response to, the "other" in the form of the amniocentesis needle, a foreign body invading the amniotic sac (e.g., 1994). Fetuses have been shown to react negatively to amniocentesis at a physiological level--such as remaining motionless for minutes at a time and showing grossly altered breathing for days (e.g., Hill, Platt & Manning, 1979)--although the process draws off only a minute quantity of amniotic fluid. But in the cases

Chamberlain cites, the fetus has gone beyond mere reaction to initiating an action against the threat, actually striking at the needle. It is tempting to project mature reasoning onto these events, to understand them as conceptually intentional acts by the fetus against an abstract, social construct of "other". But such reasoning is not necessarily warranted because ethological studies indicate that reptiles, with minimal cortical functioning, are hardwired for aggression to defend territory (MacLean, 1973, 1990).

Returning to the main point, the unborn may demonstrate more advanced forms of perception, social interaction, and habituation than formerly believed possible, but it is probably a gross exaggeration to suggest that these behaviors signal cognition at the level of ego/object differentiation *to the extent that cognition requires conceptual, cortically-mediated neurophysiology*. Without the need to "square" the neurological facts to fit the localized model of memory theory, these issues would not burn so hot. Now that we know the unborn are capable of social, interactive behaviors, *why* must they be cortically-mediated abstractions instead of innate behaviors common to mammals and other species? If we are limited to the brain as the only source of consciousness, the cortex would have to be more fully developed than it actually is for such a psychologically sophisticated interpretation of the observed behavior. If the cortex is not fully developed, then the fetus must be limited to behaviors consonant with subcortical functioning. The inadequacy of the localized model has trapped many researchers in a problem that can be resolved by using a more satisfactory paradigm, which would account for the anomalous data.

Non-Local Memory Theory and Pre- and Perinatal Data

As it is impossible to know the subjective experience of the fetus with any certainty, at a minimum we are left with learned responses that cannot be explained using the central nervous system alone. For example, one exciting area of prenatal research involves teaching fetuses to demonstrate learned activities, usually habituating to a stimulus provided by a parent or the researcher. In one such study, a father regularly approached the mother, greeting the baby in her womb every evening upon his return from work (Freeman, 1987). He was rewarded in the 25th week after gestation with a kick back from the fetus at the same spot. Changing the location of the greeting was matched by kicks from correspondingly different locations. Yet fetal EEGS do not show a cortical response to peripheral sensory stimulation or bilaterally synchronous activity until a gestation age of 28-32 weeks (Restak, 1986; Anand & Hickey, 1987). Without

this rudimentary level of neurological functioning, how could memory have been stored so that the fetus could produce a learned response?

According to Verny's observations (1987; Verny & Kelly, 1982)--and consistent with the biochemical transmitter theory--memories may be stored bodily in other cellular structures. Any emotional upset, illness, accident or toxicity that disturbs the hormonal balance of the womb can impinge painfully on the fetus and interrupt the sense of oceanic symbiosis, and these experiences aggregate over time (Fedor-Freybergh & Vogel, 1988; Connoly & Cullin, 1983; Carlson & LaBarba, 1979). According to Verny, successive hormonal jolts destroy the blankness that is the "normal state of the womb," creating a kind of receptivity as a very primitive, concrete response (Verny & Kelly, 1982, p. 44). Further, the fetus is assisted in retaining the impression made by the negative experience because such occurrences release the mother's adrenocorticotropic hormone (ACTH), a critical substance in memory retention. The combination creates an ideal behavioral learning environment: at the same time hormonal changes register the mother's distress, her mnemonic ACTH floods the fetus, recording the event. Each sequence produces a memory trace. When the number of these moments and memories reaches a critical level, according to Verny, the fetus begins to find answers in inchoate emotional, as well as physical, reactions. By the sixth or seventh month when some neocortical response is possible, Verny says, the fetus not only perceives a feeling, but discriminates among different types of hormonal changes, makes sense out of the input, and creates an appropriate response--a complex learned activity. Responses to the painful shifts may be rage, withdrawal or anxiety (Grof 1975, 1985; Verny & Kelly, 1982), but of an inchoate, primal kind since these "emotional" behaviors lack the tone and definition attributed to higher brain centers. (Indeed, they may be more like the aggression and defense behaviors associated with reptiles, not emotions as mammals experience them [MacLean, 1973, 1990], especially if Pattison's and Kahan's conclusions about amygdalar blocking are correct [1986]). Coupled with the beginning of some memory structures in the third trimester, the repetition of these painful events gradually reaches a critical level where it constitutes a rudimentary sense of self distinct from the mother, according to Verny.

Piontelli's research (1992) supports Verny's opinions. She cautiously identifies a prenatal self/other dialectic that appears to identify not only the self as distinct from the womb environment (especially the umbilical cord) but, in the case of siblings, as separate from the other twin.

Regression findings support the fetal observations and Verny's theory (e.g., Netherton & Shiffrin, 1978; Gabriel & Gabriel, 1992; Grof, 1975, 1985). The results trace a path of fetal ego development paralleling that ascribed to early childhood: ego formation begins with an undifferentiated state when the individual's needs are fully met in an oceanic embeddedness (the uterine environment prior to birth; all the environment, especially the mother, in infancy); next the environment seems hostile, failing to meet the individual's needs and even threatening survival. Regressionists report that there is no fetal sense of self, identity or autonomy early in the womb. They describe the fetus as receptive and reactive to the mother's emotions, empathetically absorbing her feelings as its own, and incapable of initiating actions through will. At first the fetus evinces no psychological skills for defending against or releasing negative emotions, particularly since the unborn infant lacks a sense of time and of the process of change (the present seems eternal).

Regression researchers say that the fetus gradually develops primitive defenses that are egoic in nature to compensate (e.g., Gabriel & Gabriel, 1992). These fetal defenses take some characteristic forms. In reaction to the mother's feelings of abandonment by the father, inability to cope with motherhood, and resentment of the pregnancy, for example, the fetus first identifies with her emotion, and then gradually forms a defense, such as becoming self-reliant ("I can't count on you. This is not a supportive, caring world, so I'll rely on myself"), assuming responsibility for the mother (becoming a "good child" or rescuers), withdrawing from life, rejecting the source of pain (e.g., the mother), etc. This self/other gestalt is unstable, however. It tends to fade back into undifferentiated one-ness when the mother's stress levels return to normal.

In regression models, birth is the culminating trauma. Regression accounts consistently reveal a rather intact sense of self at birth--a self who fears death, not returning to the womb, and "going crazy" during the excruciating crushing of labor (Grof & Bennett, 1990, p. 51; Janov, 1983). The simultaneous emergence of ego with death is a tenet in psychology, but traditionally a firm sense of ego (self/other) is not thought to emerge until about age two. Of course, exactly how well developed this ego concept is at birth remains speculative. The observable behavior may show a baby in distress, but it does not provide any real clue to the level of neonatal mentation. Regression accounts, it must always be remembered, are rendered symbolically in language and drawings by functional adults manipulating abstract concepts in a social context.

Can something as psychologically complex as a sense of self really come from an aggregate of nonlocal, cellular memories stored in undifferentiated biochemical transmitters such as RNA or neuropeptides? Buchheimer argues that nonlocal cellular memories and their potential expression are retained in the body in perpetuity (1987), a conclusion supported by other researchers (e.g., Rossi, 1990; Achterberg, 1994). He claims that cellular memory is the only way to recall precognitive past events predating logical processes and verbal behavior, but could it really combine to form something like self-awareness?

Research supporting human cellular consciousness comes from the faithful reproduction of birth and perinatal somatic states, clearly demonstrated by Janov (1970; 1983) and Grof (1975), among others. Cheek hypnotized eight adults he had delivered as infants, asking them, in addition to other information, to describe their head and shoulder positioning at birth as a measure of reliability because it is seldom known by subjects or their parents (1975). All subjects correctly identified their positioning. In another experiment, all subjects accurately relived the exact sequence of head and shoulder movements involved in their own deliveries (Cheek, 1974).

Hypnotized adults can correctly reproduce seven movement patterns clinically considered irretrievably lost with maturity (Raikov, 1980). For instance, the Babinski reflex cannot be imitated by normal, mature humans, so it is used as a diagnostic standard for neural impairment (Restak, 1986). This reflex describes two different motor patterns. In neonates, when the bottom of the foot is stroked, the toes automatically fan outward, a behavior hardwired in the evolutionarily ancient lower brain centers. With increasing brain development, fanning is superseded by curling the toes downward in reaction to the same stimulus; the pattern disappears altogether as higher brain centers take over. Recrudescence of the Babinski reflex in mature subjects indicates the extent of neurological dysfunction (curling the toes is a sign of greater brain functioning than when they fan out again). Not only did hypnotized subjects correctly reproduce the Babinski reflex in Raikov's experiments, but other researchers found that experimentally-regressed adults exhibit clinically accurate Babinski reflexes that change appropriate to their age of regression (Grof & Bennett, 1990).

Impressive as they are, these accounts of cellular memory do not support the idea that egoic awareness exists non-locally in the body. The results demonstrate an aggregation of individual cellular memories into an integrated system of bodily response

that may behave as though threatened or rejecting of the environment, but that is hardly the consciousness of socially-abstract mentation. Rather the research suggests that cellular awareness is directed toward the biological business of each particular cell, an idea that is not contradicted by any of the biochemical findings.

The observable fetal interactions to sensory events (e.g., manipulating the umbilical cord or playing with a twin)--especially learned responses (e.g., responding to auditory, hormonal, or pressure changes initiated by the parents)--may have their basis in some cellular substrate for consciousness, which is aggregated intermodally into a mental model as the central nervous system matures (cf., Meltzoff & Moore, 1985). But it is difficult to extend claims for greater cognitive complexity further using prevailing Western medical conventions about physiological functioning. No known method of transfer beyond somatic and genetic information can currently be ascribed to biochemical transmitters like RNA, nor does the neurological capacity exist for complex, conceptual thought.

Furthermore, if ego development does start in the womb, why is it forgotten? Why, as all the developmental literature shows, does the neonate have to relive these stages from birth through the second year? The traditional answer is that the trauma of birth is so profound that it and the preceding events are forgotten and repressed, permitting the resumption of undifferentiation (e.g., Freud, 1923/1961; Rank, 1929). If the repression hypothesis is true, ego development during gestation is also completely forgotten and must then be repeated, although, as we have seen, most memories associated with cellular processes (such as birth positioning) are not lost. A physiological cause for the repression of birth memories may take place at the cellular level. Oxytocin, the mother's principal hormone for inducing uterine contractions and lactation, is thought to cause infantile amnesia, a normal occurrence in mammals at birth (Catano & Catano, 1987; Verny & Kelly, 1982). The fetus and womb environment are awash with oxytocin from the time the mother's contractions begin, though the reasons oxytocin might induce cortical but not cellular amnesia are far from clear. Another possible explanation for the loss of fetal ego development is that some massive reorganization of useful neurological circuitry occurs at birth, rendering certain pre-established patterns inaccessible so that they must be learned again. Although the "losing" and "regaining" of certain motor activities, such as coordinated walking and swimming movements, has been shown to occur as maturation modifies neurological patterns (Restak, 1986), this research has not

been extended to psychological concepts. Nevertheless, some physiological data might support a hiatus in psychological development.

Non-Physical Memory Theory and Pre- and Perinatal Data

In the above research, regression records were used to augment theory based on the direct observation of fetal behavior. The next group of findings reverses that relationship: regression data are presented as the main body of research, supported by independent findings from fetal observation. With this shift in the weight of the evidence, neither localized nor non-localized memory theories are adequate to explain the data. The only way to account for the following findings is to accept that a physically transcendent source of consciousness--or, at the very least, one that functions outside any known physiological processes--exists as a source of memory. In contrast to theoretical constructs built upon regression reports of psychodynamics from which ego development is inferred, as cited above, the research below is strictly limited to the most conservative proofs in the empirical tradition--memories of non-subjective events that could be validated by independent, third-party observations. Before presenting these findings, a critical exploration of the nature of the evidence is warranted since it represents a very new methodology for gathering and assessing information.

Regression data suggest a universality of experience, usually presumed to be a strong argument for the validity of the data. Perhaps the least disputed are verified pre- and perinatal memories spontaneously expressed by children two to four years old (Chamberlain, 1988a). This is a new area of research in the West, where children's recall of early events has tended to be dismissed as fantasy. The data I will be mainly considering comprise veridical pre- and perinatal memories produced by older subjects during different therapeutic or experimental conditions that access the deeper layers of the psyche: traditional psychoanalysis, deep body work, and induced altered states, such as hypnosis, sleep deprivation, sensory isolation, breathwork, and the use of certain psychotropic substances. The emergence of such recollections is not reliant upon consciously-held beliefs; in fact, it often contradicts them (Bache, 1990). Such memories surface in the same way as recollections from childhood. They do not appear to be a separate body of impressions.

Conventional scientists view material elicited during altered states with skepticism because, according to the prevalent Newtonian paradigm, altered states are

dysfunctional, yielding a "false" or distorted perception of a fixed, external material reality. Leaving aside the doubtfulness of such a metaphysical stance (according to contemporary thinking in the physical sciences) as outside the scope of this paper, the problems created when a person with fairly mature ego development recalls prenatal--presumably pre-egoic--subjective experience warrant discussion.

Developmental tradition ascribes fluidity to time, space, and ego boundaries in infancy, attributes common to many nonordinary states, but not to mainstream, waking adult consciousness. Therefore, obtaining prenatal recollections from mature subjects potentially creates two dilemmas. First, if the material involves other kinds of awareness, it may not be fully accessible in a significantly different mode (Tart, 1983, 1972). In other words, the content and phenomenology of one state of consciousness may not "translate" fully to another, just as the insights and phenomenology of dreams are lost, distorted, or diminished in the waking state, and vice versa. Yet researchers have found that subjects retain many impressions, and can convey them to others, despite their ineffability, usually with sufficient success that the depth and type of their experience can be charted (e.g., Siegel, 1977). Second, access to prenatal consciousness may occur during an altered state because it phenomenologically replicates the prenatal state in some way. If this is true, it introduces the potential for fantasy--are prenatal "memories" somehow *produced* by nonordinary states? The prevailing view is that altered states--even those involving hallucinogens--do not *create* the experiences they induce, rather they *activate or amplify* the deep unconscious and make its contents available for conscious processing (cf. Grof, 1988; Siegel, 1977). Moreover, regression experiments show that recollections tend to be reexperienced *as the past events unfolded to the subject's earlier awareness* (Verny & Kelly, 1982; Chamberlain, 1988a; Janov, 1970, 1983). Interpretation, which is colored by current maturity, is a separate and discrete phenomenon easily recognizable in the records.

Materialists dismiss all altered states as fantasies arising from a fixed pattern of neural circuitry (Ornstein, 1991; Siegel, 1977). That is, alterations in brain chemistry provoke characteristic responses laid down in human neural structures. Altered states produce conditions whereby some universal hallucinations biologically encoded in all human beings surface and are then interpreted by the subject as having meaning. This position effectively reverses the weight normally given the universality of experimental results by saying that the ubiquitousness of prenatal memories *supports* the idea of innate neurological patterns rather than weakens it. The beauty of the neurological-patterning

argument is its irrefutable and unresolvable status; by its very nature, the veracity of such a view will always be impossible to know *as long as the mind is bounded by the brain*.

The mind/brain link is a Gordian knot, however, since evidence of consciousness *prior* to a functioning brain tends to invalidate the central nervous system as the sole source of awareness. And a vast amount of such evidence now exists. One example is the veridical, visual imagery of birth events elicited by hypnotic regression. Minutely detailed reports--descriptions of the people present, their apparel, the procedures and instruments used--have been verified by third parties in a number of studies (e.g., Cheek, 1986, 1992; Chamberlain, 1981, 1987, 1988a, 1988b). Yet neonatal visual processing is incapable of these kinds of observations. Newborns have difficulty focusing, fixating on stationery and moving objects, and even converging both eyes on a single target (Flavell, 1985). Contrast sensitivity is quite poor, as is visual acuity (perhaps only 20/600 Snellen). Thus, detailed visual memories confound the notion that consciousness resides in the central nervous system. Arguably, RNA, neuropeptides or some other nonlocalized biological structure could be retaining impressions, but it is hard to imagine how cells lacking structures for optical processing can see, retain or transmit a visual image.

Finally, research into prenatal consciousness is very new, and unfortunately, the people who probably encounter signs of it most frequently are therapists in private practice who neither publicize nor systematically investigate their findings. Two bodies of information emerge from the somewhat limited literature, but they often overlap. The first are findings tied to *in utero* experience and a rather immature fetal consciousness--impressions from changes in the placental chemistry, pressure or constriction of the space; auditory memories; impressions of emotions; and even some rudimentary ego development--in short, data very consistent with the conclusions from fetal observation presented above. The second are findings suggestive of a much more mature form of consciousness that transcends, or is separate from, the fetal body.

Both in-body and out-of-body "voices" appear in the same records, and the two are not often distinguished from each other in this emerging literature. Published verbatim narratives frequently show intermittent sources of consciousness, one *in utero*, the other unbounded. Switches in vantage point or voice occur in virtually all records, though alterations in the quality of consciousness are not always as apparent. This duality is not an artifact of the altered states used to access the material because

confusion between an outside vantage point and events inside the womb is found in the spontaneous accounts of very young children (Chamberlain, 1988a). In fact, children do not seem bothered by the dual vantage point, but older subjects may express puzzlement even under hypnosis, as these three records illustrate.

> At times I feel like I'm somewhere in the room witnessing what is going on, and at other times I am the child and seeing it from that point of view . . . I wonder how come I can see around behind him?. . . .
>
> It's like flashing both. It's like I am somebody else looking at what's happening. Am I making this up? I don't think I am, but I hesitate to say what I'm actually seeing. . . .
>
> I keep looking through the nursery window. It's weird. I can't be on both sides of the window? I'm looking at the baby; it's me. (Chamberlain, 1988a, pp. 187-188)

Whether indiscriminately confused or alternating between internal and external vantages, these two sources of consciousness are clearly experienced as a continuity of same self. Since the brain is known to have several independent sources of awareness simultaneously recording perceptions that are experienced subjectively as a single self, the idea of multiple sources of consciousness in itself is hardly new (cf. Ornstein, 1991; MacLean, 1973, 1990; Sperry, Zaidel & Zaidel, 1979). The seamless subjective experience of continuity of consciousness continues unbroken even as different neural groups dominate awareness in a rapidly changing, variable sequence. The only novelty here is that one of those sources of consciousness may function independently of the body and central nervous system, as currently understood.

The majority of published reports demonstrating a transcendent source for consciousness come from the later stages of pregnancy and birth when the fetal central nervous system is relatively well developed, so these records tend to show both streams of consciousness, one voice describing the experience of the fetus in the womb, the other describing events outside the mother's body. As noted, these reports come almost exclusively from the regression records of older subjects, but it should be remembered that children's spontaneous accounts, complete with descriptions of forceps injuries, medical complications, people present and their roles during delivery, have been verified (e.g., Chamberlain, 1988a). Toddlers' stories generally appear between the ages of two and three when children start talking, and seem to be forgotten by about age five.

Regressed adults also produce veridical somatic memories--birth position; placenta previa; the umbilical cord twisted around the neck; the use of forceps, castor oil and various manual maneuvers; descriptions of different kinds of anesthesia; specific resuscitation procedures, etc.--in addition to physically-transcendent percepts (e.g., Grof, 1985; Janov, 1970, 1989). In all these cases, the transcendent source of consciousness can be isolated by its content (reporting events impossible for the fetus to experience through any known sensory means). The least ambiguous evidence comes from very early in gestation and from occurrences that show knowledge impossible to acquire in the womb.

Concerning early gestation, regressionists believe the events most likely to be impressed in memory are highly emotional ones for the subject: the moment of conception, the discovery of the pregnancy, the first communication about the pregnancy, and the birth (TenDam, 1990). Of course, such times are probably highly emotional for the mother as well, whose hormonal changes would be affecting the fetus in a concrete way, perhaps creating a physiological mode of information transmission. Some findings fall within a gray area: on the one hand, they cannot be explained by any known physiological method of information transfer, suggesting extrasensory communication; on the other hand, they do occur within the mother's body, so a physical medium cannot be ruled out entirely. For example, a pregnant woman concentrating her feelings of love for her child into one hand laid upon her abdomen can induce the fetus to nestle into it (Veldman, 1982). Alternating hands causes the fetus to rock from side to side. There is no known medium by which a hormonal change would localize in one spot arbitrarily chosen by the mother, though it might be possible that the radiant temperature from the mother's hand could signal the baby in some way. In another study, pregnant, habituated smokers were forbidden cigarettes for a couple of days (Lieberman, 1963). When the women were handed their first cigarettes after deprivation, monitors picked up immediate fetal stress reactions *before the mothers had even lit the cigarettes*. They were reacting to the mother's thoughts about smoking, but where the mothers' were pleasant, the fetuses' were apparently distressed. No known physiochemical method explains the fetal responses.

Getting around the potential for physiological transfer and cellular memory storage by the fetus, regression subjects have accurately reported incidents long before most neurological systems were complete, in some cases before the zygote was even formed, such as veridical memories of events surrounding conception (Grof & Bennett,

1990; Chamberlain, 1990). No matter what the gestation age, these records show complex ideation, insight, and a sophisticated, telepathic knowledge of the unexpressed thoughts or emotions of others checked against information provided by parents, relatives, medical professionals and clinical records. The following conception record is eloquent.

> Ingrid remembered her mother and father making love on a couch in Germany, before they were married. The doorbell rang to announce that Grandmother and Aunt had come back from shopping when they weren't supposed to. The encounter sent shock waves through all present. Ingrid says, "Mother was beside herself. She knew she got pregnant. She was ashamed. She didn't want to do it in the first place". . . . (Chamberlain, 1990, p. 181)

Memories of later events--attempted abortions and other early occurrences--often contain naive descriptions of abstruse medical conditions or procedures most lay people would not know about (Laing, 1982; Grof, 1985), such as one study in which gestation dates were calculated by having subjects describe their relative head-to-shoulders size as an index of fetal age (Van Husen, 1988). The following abortion account is fairly typical in that it mixes two points of view, an exterior one, as well as the intrauterine experience; illustrates the rather primitive fetal ego defense formation described above; and shows the interpretive voice of the subject, as distinct from the relived recollections.

> I was hardly formed and my mom is using some kind of remedy to wash me away. It feels real hot . . . I know she is trying to get me out of there. I'm just a little blob. . . . My aunt seems to be giving my mom directions. I can hear her voice and another woman in the background. She is not supposed to get pregnant. . . . It had a strong harsh smell, almost a disinfectant smell, like ammonia . . . . I knew nobody really wanted me then . . . but I was determined. I was a fighter even then. Poor mom would die if she knew I knew all this stuff! (Chamberlain, 1990, p. 179)

Of course, the extent to which meaning is made of these recollections relies somewhat on verbal ability, a quality mature subjects bring to any regression. Are they merely giving words--and abstract, cognitive interpretation--to a feeling impression? Or, since research has shown that infants retain auditory stimuli--voices, stories, words, songs--that were repeated during their gestation, are the subjects retrieving memories of actual words spoken? Aural memories are physically possible because the fetal ear, cochlear nerve and its associated neural networks create the ability to hear by the midterm--but not before (Tomatis, 1987). Myelination of the cochlear nerve is not

complete until 22 weeks, spreading into the brain so that the temporal lobe is completely myelinized and functioning at birth. However, researchers who collect data concerning habituation to aural stimuli do not claim that language is understood, rather that familiar patterns of intonation, rhythm, and pitch are recognized (e.g., Tronick & Adamson, 1980). Yet regressed subjects can understand and repeat conversations overheard once, as the examples above and below demonstrate, including aural memories of events prior to the midterm. Are meaningless sounds retained by the fetus decoded into language by a more mature subject under hypnosis? It seems doubtful given the timing of some of the earliest accounts, unless--contrary to current understanding--aural memories can be retained in undifferentiated tissue (like RNA or other biochemical transmitters).

Even if hearing could account for the meaning made of these events, most records contain physically-transcendent, veridical visual images impossible to obtain from inside the womb, impossible to obtain during the period when the fetal eyelids are fused, impossible to obtain during most of birth when the infant's face is mashed against the sides of the birth canal, and finally impossible to obtain even at birth given the state of neonatal optical processing. In the following example, the subject's aural and visual impressions under hypnosis are verified by the mother.

> [Subject]: Mother is sitting on a couch knitting something. My dad comes into the room and asks, "Why are you knitting something for a *girl*?" . . . . She has on a green plaid dress. I can't see any other color. I think it is dark" . . . .
>
> [The mother] exclaimed, "I had a green and black plaid dress on and I can remember when that was! I had just begun feeling Debbie kicking. It was in April. . . . I gave that dress away right after my pregnancy. I would have been almost five months along." (Cheek, 1992, pp. 127-128)

At the end of the pre- and perinatal period, birth narratives in one of Chamberlain's studies that matched independently gathered memories from mother-and-child pairs (1988a) include accurate reportage of the time of day, locale, persons present, and instruments used. These memories extended several days after birth, including correct feeding sequences (water, formula, and breast feedings), room layouts, details of discharge and arrival at home. The results cannot be explained by the mother's memories being passed along to the child because the child's recollections often contained information unknown to the mother. All narratives agreed on major points. Where differences occurred, usually the child's account was verified by doctors and nurses as

the correct one. In one extraordinary record, a regressed subject actually *describes herself prior to birth as a nonphysical entity*.

> I never thought about being a person, just a mind. I thought I was an intelligent mind. And so when the situation [of being born] was forced on me, I didn't like it too much . . . . They were doing things *to* me--to the *outside* of me. But they acted like that's all there was . . . . (Chamberlain, 1988a, pp. 155-157)

Identification of the self with a noncorporeal source of awareness--and all the records showing two sources of consciousness--are corroborated by Helen Wambach's experiments (1981), which lack third-party verification, but show an interesting trend. Wambach regressed over 750 people, 89% of whom spontaneously reported having two separate, simultaneous sources of awareness. They did not identify with the growing fetus or its stream of consciousness, although they accepted that the fetus was "theirs". Instead, they seemed to exist outside the fetal body, tending not to become involved with "their fetus" until at least six months after conception. Wambach's subjects characterized themselves as disembodied minds hovering around the fetus and mother, being "in and out" of the fetus and having a telepathic knowledge of the mother's emotions throughout pregnancy and birth. One-third of Wambach's subjects did not join their consciousness with that of the fetus until just before or during birth; 12% attached to the fetus about the beginning of the third trimester (when bilaterally synchronous brain activity is first observed!); and only 11% reported prior attachment to the fetus (1981). The rest joined within a day or two after birth. Other researchers agree that the source of awareness may be hovering above and around the mother during pregnancy, often not entering the baby until after birth, and then sometimes quite reluctantly (Gabriel & Gabriel, 1992; Chamberlain, 1990).

In conclusion, the regression research suggests that a transcendent source of consciousness coexists with source located in the fetal body. While the brain lacks measurable, sustained, bilateral electrochemical activity until the third trimester, the transcendent source may be present even before conception. It seems to be limited to an area immediately around the fetal body or the mother from conception up to an extreme limit of two days after birth, but from a critical examination of only the prenatal literature, its relationship to the fetus is not entirely clear (data from developmental and other literatures suggests a life span theory integrating a transcendent source of consciousness with a brain-bound source; see Wade, 1996). Most regression accounts are an amalgam of overlaid impressions from inside the body and outside the mother's body,

congruent with Wambach's reports of the transcendent source's being intermittently "in and out" of the fetus. A large proportion of the records come from a time in the third trimester when either the transcendent source or some somatic source, such as the brain, central nervous system, or other cellular process, might be recording impressions and dominating moment-to-moment experience.

Discussion

Accepting that a transcendent source of consciousness may exist--and that its capacity for mature, Formal Operations thought need not rely on neurological sophistication--could explain not only all the anomalous data, such as the veridical, extrasensory regression reports, but would provide another way of accounting for certain "precocious" fetal activities. Alteration between the two sources for moment-to-moment dominance of subjective experience could explain the mostly primitive observable behaviors of fetuses as exhibiting the sway of the immature brain (or cellular memory, in the case of the non-localized model), rather than the more mature awareness of the transcendent source. For example, the fetal "shock" reaction to amniocentesis presumably lacks the telepathic and detached insight into the harmless nature and intent of the procedure that the transcendent source might have.

Conversely, the ability to access both sources might explain one very puzzling set of findings, the recently-discovered ability of neonates to recognize the mother's face in a photograph at birth (Walton, Bower & Bower, 1992). Despite prohibitively immature optic processing, studies show that only minutes after birth, babies can pick out their mother's face from an array of enlarged portraits. Even if visual capability is greater than previously believed, it is difficult to explain recognition of a face never seen *except by the transcendent source*, unless the transcendent source is still able to emerge during the perinatal period. The fact that neonates do exhibit great alertness for the first few hours after birth, in marked contrast to the rather dreamy, vague open-eyed condition of weak and fluctuating awareness that characterizes the first weeks of life (Bower, 1977), suggests that the first 48 hours after birth may represent a period when the transcendent source is active.

Admittedly, this conclusion is highly speculative, but hardly unwarranted, given the experimental results. Entrainment of the transcendent source with the source of fetal consciousness occurs by an unknown means, but Wambach's data indicate that the level

of neurological activity binds the two sources closer, with the brain-based source of consciousness increasingly overtaking subjective experience as sensory stimulation and electrochemical functioning intensify. Alteration between a primtive body-bound source of consciousness and a mature, transcendent source could explain the variations in behaviors and findings from researchers. This kind of alteration has direct parallels in neurological research, especially the switches and conflicts between right- and left-hemispheres (e.g., Sperry, Zaidel & Zaidel, 1979) and other neuronal groups (e.g., MacLean, 1973, 1990; Ornstein, 1991).

To sum up the data on the transcendent source of consciousness, it appears to be distinct from fetal awareness, even allowing for a much more advanced state of prenatal ego development than previously postulated. When it can be separated from its sensations of the body, the transcendent source appears to be fully mature and insightful. The voice of the transcendent source registers thoughts, feelings and actions but is not comprised of, or very attached to, these. It is characterized by a sense of self but relatively little ego, and it seems to understand the reactions of others with compassion rather than through the lens of ego defense structures. The body-based awareness, on the other hand, appears to go through the first rudimentary steps toward ego differentiation described by Verny (Verny & Kelly, 1982). According to all the developmental research, this early ego development is lost and must be repeated over the first two years of life, perhaps due to a massive reorganization of neuronal circuitry at birth.

What becomes of the physically-transcendent source? Is it overcome by brain-based sources of awareness? Does it still exist, but silently and inaccessibly? Can it be accessed through different parts of the brain, such as the right hemisphere, which are activated during altered states? Researchers have attempted to verify similar out-of-body experiences in healthy, mature subjects, but the results have not been conclusive. However, research into the early memories of very young children suggests that they may be able to access the transcendent source up to about age five with some degree of facility (Wade, 1996; Chamberlain, 1988a; Stevenson, 1975-1980; 1987). Then at the end of life, an early phase of near-death experiences abounds in parallels to prenatal accounts, especially verified reports of events and psychic knowledge about the unexpressed emotions and thoughts of others present that would have been physically impossible for the decedent to perceive if awareness were limited to the body (Wade, 1996). The phenomenology of near-death out-of-body experiences and pre- and perinatal reports is remarkably similar, and it must be remembered that the former are elicited from subjects

in normal, waking consciousness--not during the altered states used to access early memories through regression. Like fetal accounts, the experience of an out-of-body source of consciousness near death seems universal and many of the data have been obtained when there was no measurable brain activity, often for a considerable period.

In conclusion, the aggregated data strongly suggest that two sources of consciousness exist: one that is tied to the physiological development of the fetal body, especially the central nervous system; and another that appears to function relatively independent of the body. Conventional medical models that presume memory resides only in the central nervous system can account for only a small amount of the data presently available, although they retain the weight of tradition and the endorsement of the medical and psychological establishment. Non-local theories of memory can account for more of the data, though most of these additional findings concern the reproduction of somatic states rather than mentation. No link yet exists connecting non-local memory retention and transmission to learned behaviors, much less abstract thought. Non-physical theories of memory provide the only framework that can account for all the complex, cognitive recollection of events, especially those taking place outside the mother's body.

Given the shift to a post-Newtonian paradigm in the physical sciences where spatial and temporal dimensions do not necessarily behave causally or in a bounded way, transcendent findings may no longer be anomalies. In fact, Kuhn's model of scientific progress (1970) predicts that just such uncomfortable discoveries proliferate as older paradigms mature and before new ones are entirely understood. Instead of force-fitting unusual data into a materialistic framework--or denying its validity--behavioral scientists might be better advised to examine the new paradigm as a better fit for noetic studies. The whole body of prenatal evidence, be it ever so troublesome in the Cartesian-Newtonian worldview, may reside in the new paradigm with elegance and parsimony (see Wade, 1996). Thus, theories of prenatal development that recognize the full range of veridical data need not ignore evidence for two voices in the pre- and perinatal records, especially since neurologically based consciousness is believed to comprise a unitive subjective experience from multiple sources in the brain. The only difference is recognizing that prior to well-advanced neurological development, prenatal consciousness evidently includes memories arising from a source outside the fetal body and accepting that such a source may have validity in a new scientific frame of reference.

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