

What's Going on in There?: How the Brain and Mind Develop in the First Five Years of Life
by Lise Eliot

Practical advice, reassurance, and the best kind of guidance for a parent. Useful insights on evolutionary biology.

I bought this book as a reference for evolutionary biology. I wanted to know specifically about the evolution of speech.

I got much more than I bargained for. It is a book by an evolutionary biologist about how children form. It is from her perspective as a parent. She interprets observations about her own children in light of her lab experience and reading.

She talks in general about the evolution of the nervous system throughout the history of life, coming really quickly to the primates, giving a brief summary of the seven million years since we parted from our primate ancestors. We still have a lot in common with them, to which she stresses throughout the book. We have likewise changed quite a bit. In particular, our brains are four times the weight of those of our nearest relatives, chimpanzees. That additional functionality has gone mostly into the cerebral cortex, the part of the brain which is far more developed in humans than every other animal.

An infant is born with his brain far from fully formed. There are more neurons there than will ever be used, but the connections among them are still few and unformed. The first couple of years of life are dedicated to making connections that will be needed and eliminating neurons that are not.

What is needed of course depends on the child's environment. With regard to language, neural paths needed to recognize and produce the ambient language are strengthened; unused sounds are not supported. A child with obvious deficiencies such as eyes or ears that don't work will not need the corresponding parts of the brain; the neurons that would be dedicated to seeing or hearing are eliminated. The same is true, unfortunately, for certain social genes. The child learns to be social by socializing, and the corresponding behavioral parts of our brains develop as they do.

Post-natal wiring is an economical way of allowing a highly evolved animal to emerge from the birth canal in a small package. All the parts are there, but it is not fully assembled. The multi-year self-assembly process is both genetic – prewired – and epigenetic, depending on the environment in which the child finds himself.

One of the most interesting chapters deals with adverse impacts on the foetus during pregnancy. Substance abuse, the wrong pills, unfortunate infections, everything that can affect the growing baby. There are a vast amount of old wives tales on the subject, and it is a delight to find the relevant data on most conceivable conditions in one place from an authoritative source.

She hardly addresses abnormalities due to faulty sperm, citing only lead exposure. The more obvious risks on the father's side have to do with not getting pregnant in the first place. It only makes sense that what the mother does before and during pregnancy has a greater effect than what the father may have done beforehand. Whichever gamete may have been responsible, most nonviable fetuses are spontaneously aborted in early pregnancy.

She goes into some length about the malformation of the neural tube which results in anencephala – the lack of a brain – and spina bifida. There are quite specific measures to take against the occurrence of these deformities.

With regard to language learning, my topic of interest, the brain is wired to acquire language on a prescribed schedule. She credits Jean Piaget with mapping the developmental calendar of a newborn, and emphasizes that every infant of virtually every race follows pretty much same sequence of developmental steps. The first things that sound like words may appear shortly before a year, and by the age of 2 ½ they are speaking in sentences. These are sentences that they earnestly understand, whether or not the parents do as well. They are working hard to mimic what they hear. They love to make sound, and they love to repeat sentences, very consciously practicing to get the sound right.

I highly recommend this book to any parent or parent-to-be. It is full of practical advice on how to maximize your baby's intelligence and sociability. She repeats the conventional wisdom in support of breast feeding, and goes on at length about the benefits of physical contact, and especially massage. My toddler son loves it, I am happy to say, and it is my conviction that early and frequent interaction with me is an important way to form his conception of himself as a man and future husband and father.

A five-star effort throughout. Easy to read and valuable at every step.