Summary of the Joseph Chilton Pearce Lecture March 20, 2003

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We are living in a historically unprecedented time. Suicide in children used to be rare; it is now the third leading cause of death for American children. If unsuccessful suicides are added to the successful attempts, the number is 5 times higher than the next leading cause of death. Millions of children are on antidepressants and Ritalin. In countries such as Brazil, millions of abandoned children are living in feral packs. They live short lives of violence before succumbing. Everywhere in modern countries, more and more people are simply choosing not to have children. Since one of the highest priorities of any species is to reproduce and protect the young, clearly something is seriously out of balance in human societies today.

According to Joseph Chilton Pearce, one of the main factors that has brought about this fundamental change is the influence of television and computers on children's neurological development. In a densely detailed and fascinating lecture sponsored by the City of Lakes Waldorf School, Mr. Pearce pulled together information from many disciplines to explain why Waldorf pedagogy recommends protecting children from television. Pearce, who has written or co-written about 20 books on human development, social organization, and human potential, has been studying these fields for over 50 years.

Startle Reflex

Imagine a pioneer in the north woods of 100 years ago standing at the edge of the clearing as the sun sets and dusk settles in. The shadows are lengthening and the birds are quieting. In the bushes off to the left a flicker of movement occurs. Suddenly the person's utmost attention is given to that event – is it a bear or a wolf, or even a human enemy? The heart rate surges and cortisol and adrenaline circulate as the person readies for possible fight or flight.

This time it is only a raccoon. The urgency fades and the person is aware of being nervous or scared. First comes awareness of emotion, followed by thinking and processing what might have been done, what might have happened. These stages come after the initial reaction. But equally important is another action taken by the person's subconscious nervous system: an entry is made in the register that keeps track of danger in the environment.

Our ancestor has just demonstrated the phases of reaction in the startle reflex – one in which the visual input is sent to the primitive hindbrain for processing before engaging the higher processing of the cortex. This system works like the brain in reptiles and is sometimes called the reptilian brain in humans. The reflex action is very powerful. It is almost impossible to turn away from a stimulus that might mean death or danger. The reflex is hardwired into our brains so that we can't continue to do something else while under threat of imminent attack.

Manipulation of this reflex is at the heart of television's success at holding the audience captive an average of 5 to 6 hours per day for every man, woman, and child in America. It also has some very distinct consequences for brain development and behavior. To understand this, we have to engage in a brief overview of the brain's organization and development.

Stages of Brain Development

The oldest section of the brain's four layers, evolutionarily speaking, is the hindbrain or reptilian brain. This section controls basic body functions such as breathing, heart rate, and sleep-wake cycles. As noted above, it processes the signals coming in from the senses that might have survival consequences. One feature of this system is that it has very limited learning potential. If you have a snake in a cage and startle it over and over, it will not be able to learn when the stimulus can be ignored and when it can't. This same limitation is present in humans, too, even when the cortex learns to ignore the warning.

When these reflex pathways are used repeatedly, the threshold for action becomes lower and lower. Essentially, if the world needs you to use these reflexes repeatedly because there is frequent danger, the brain makes it easier to react. Repeated thoughts take on a life of their own as the brain becomes habituated to them.

The second layer of the brain is the limbic system, or emotional center. This is covered by the cortex, which is the third layer. Higher level processing, such as complex motor skills, memory, and some moral reasoning, occurs in the cortex. All mammals have these characteristics to varying degrees.

The latest center to develop, which is only about 40,000 years old, is what really creates the human

traits of higher thinking and reasoning. The fourth layer is a feedback circuit that processes the information and output from all the other layers. This center can then inhibit or modify the output of the other centers, which results in more thinking being done before action is taken.

There is a major connection between the heart and brain that is just beginning to be recognized and studied. The heart is a powerful electromagnetic generator that creates a field around the person that can sense the surroundings and communicate with others. When the brain operates in fight or flight mode, this connection and processing is suppressed for some time. (for more information, refer to books or information from Heartmath).

As the human embryo develops, the brain layers are created in order, starting with the hindbrain. The higher centers are thus more susceptible to disturbances in development. The basic template is laid out in the embryo, but it is not mature and fully functioning until approximately the 20th birthday.

Assessing Danger in the Environment

At each stage of development, from the critical first weeks after conception until death, the subconscious nervous system of the individual evaluates how dangerous the environment is to the survival of that individual and its family/community. If the world is dangerous, more resources are devoted to the systems that directly affect survival, namely strength and speed, early sexual maturity, and fast reactions. The behavior that goes with that is more violent and force oriented. Research studies show that babies born to mothers who are under threat or danger during pregnancy have a larger hindbrain, smaller cortex and neocortex, and larger muscles. They are further along in development, as well. In other words, these infants are ready to hit the ground running. (The accelerated maturity is not necessarily a benefit: it hastens the closing of each stage of development).

In contrast, babies born to mothers who are safe and secure are relatively weaker physically, but have devoted more of their energy to the higher brain centers and less to the hindbrain. The nerve pathways in the higher brain are more complex and further along in development. Behaviorally, with the higher centers predominating, arts and creativity, peaceful pursuits, complex social interaction and cooperation are favored.

Although a baby is born with all the rudimentary parts of the brain in place, they mature and become functional in a particular order. The neuromuscular system matures first (age 0-1) followed by the emotional centers (between 1 and 3), the right brain (age 4-7) and the left brain (starting about age 7) and later, the higher brain centers. Since each brain region matures in its turn, once that process is complete little change can occur.

Again, as each stage of development progresses, the organism evaluates the relative safety of the environment and decides whether to allocate precious energy to the mental pursuits or the survival skills. A four year old under physical or emotional danger will have less development of the right brain than one who is safe and secure.

Television Affects Body Chemistry

With this background, we can begin to look at the long- term consequences of television on development of children less than 18-20 years old. The mainstream culture, which is saturated with television and computer for children, is engaged in an evolutionary experiment with potentially devastating long term effects.

It is easy to forget that television is not a neutral, benign influence. It is carefully crafted to manipulate the hind brain reflexes to keep attention on the program. Every time a camera angle changes, a cartoon character jumps out of a cereal box, or the music surges, the startle reflex is activated and the hormonal changes occur, just as if a real danger were present. Even worse is violence portrayed in programs or video games. This reaction is not occurring in the higher brain centers, which means it cannot distinguish between real and simulated, nor can it learn that these things are not really a threat. The reaction takes place even though the viewer is fully aware that television images are simulated.If these qualities in the programming were not carefully manipulated, people would fall asleep or simply wander away from the TV.

Equally important to the fear hormones circulating for hours after watching TV is the registering of danger by the subconscious mind. Even though the images are only acted out or are real events happening far away, the viewer accumulates more and more evidence that the world is a dangerous place. These changes occur even if the TV show is relatively nonviolent.

Changes in Development

Several consequences arise with this cumulative sense of danger. One is that the child will put more energy

into physical survival systems. They will be stronger, faster, more violent, and more prone to making snap decisions without rational thinking intervening. The more real or simulated violence they are exposed to, the more this occurs. Complex reasoning and social structures do not develop as fully, and the child relies on more black and white, concrete thinking.

The second consequence is a biological adaptation of all species in a hostile environment: early maturity and sexual reproduction before one is killed. Historically, worldwide and across various cultures, age of sexual maturity averaged 15. In modern day America, the age of sexual maturity is now around 10. Mr. Pearce stated that 25% of 8 year old girls are showing signs of sexual maturity with breast development. This may have several causes, but Mr. Pearce says that TV itself is the main factor.

A third occurrence is that the heart-brain pathways are temporarily suppressed, which reduces the ability to sense connections with other humans, animals, and even possibly cosmic intelligence. In a literal sense, TV really does isolate the viewer from others.

Mr. Pearce asserts that the creative mind is incapable of violence. The creative power present in the higher brain can always see multiple possibilities in a given situation and if the first option does not work out there are others to try. The truly creative person is rarely boxed in with no options to choose from. In contrast, the child who can see only one way to handle a problem will be out of options if their solution is blocked. They then may resort to force, belligerence, or violence to push their way to a solution. The violence can be inward, toward the self, or outward toward others.

Reversing the Changes

Fortunately, as a child develops, the natural urge, or drive, is toward higher development. If a stressful, dangerous situation is resolved and security is restored, the child will shift toward higher brain development. This allows him or her to make up part of the lost function, provided the window of development is not closed for that area.

By raising children free from the influences of television, video games, and computer educational software, one is ensuring their highest level of development and functioning. Rudolf Steiner was far ahead of his time when he predicted these outcomes decades ago. There is now research coming from many different fields of study to support these assertions, although you probably won't see much coverage on the 10 o'clock news.