

## **BIOLOGY OF LOVE**

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We human beings are love dependent animals. This is apparent in that we become ill when we are deprived of love at whatever age. No doubt we live a culture in which we are frequently in war and kill each other on different rational grounds that justify our mutual total denial as human beings. But doing that does not bring to us happiness, or spiritual comfort and harmony. Love and aggression - are they polar features of our biology or, of our cultural human existence? Are we genetically aggressive animals that love occasionally, or are we loving animals that cultivate aggression culturally? Our purpose in this article is to maintain that we are loving animals that cultivate aggression in a cultural alienation that may eventually change our biology. To this end we shall speak about the following themes in short but basic statements:

- A) the systemic constitution and conservation of human identity;
- B) the origin and development of the self in the mother/child relations;
- C) the evolutionary origin of humanness in the conservation of neoteny and the expansion of the female sexuality;
- D) the biology of love.

A) That we are living systems means that we are structure determined systems, that we operate at every moment according to our structure at that moment, and that nothing external to us can specify what happens in us as a result of our interactions in a medium. External agents can only trigger in us structural changes determined in us. Moreover, the structure of a living system is not fixed, it changes according to its own internal dynamics and following the course of the structural changes triggered in it by its recurrent interactions in the medium. In fact, all that happens in us, in our individual life histories, and all that has happened in the history that gave origin to us, necessarily has taken place and must have taken place through our operation as structure determined systems.

The species (class) identity of a living system is made possible by its genetic constitution as the foundation of a field of possible courses in epigenetic development, but does not determine what indeed happens in its individual history. What occurs is as follows. The class (species) identity of a living system is defined by the reproductive conservation of a manner of living, and a species lasts as long as the manner of living that defines it is conserved generation after generation in the constitution of a lineage. In this evolutionary process, living systems and medium change together in a systemic manner following the path of recurrent interactions in which their reciprocal dynamic structural congruence (adaptation) is conserved. The result is that a living system of a particular kind lives as long as its living contributes to create the conditions in which its particular manner of

living is realized and conserved, or it dies as a living system or the manner of living that defines it, stops being conserved and a new kind of living system arises.

In other words, the particular manner of living of a living system is not determined in an hereditary manner through its genetic constitution, nor is it genetically conserved generation after generation in the constitution of a lineage. The manner of living of a living system is realized systemically in an ontogenic structural drift (epigenesis), and is conserved systemically generation after generation in a phylogenic structural drift (phylogenic epigenesis). That is, the total genetic constitution of an organism (nuclear and cytoplasmic structure of the initial cells), constitutes the fundament for its ontogenic and phylogenic epigenesis. Indeed, the manner an organism lives its individual life arises in the interplay of the organism and the medium, not as an expression of some genetic determination; that is, it arises *de novo* in each individual life in the encounter of two dynamically independent systems, the organism and the medium. In these circumstances, the phenotype as the individual realization of an organism is not a partial expression of the genotype, as is frequently said, it is something that arises anew even when it repeats as the initial structure of the organism and its individual history of interactions happens to be repeated in a succession of generations. This applies to our identity as human beings as well as to our individual identities as the particular kinds of persons that we are. Let us consider an example in relation to this later aspect. If a man is a University Professor, to be so is not an intrinsic property of his. He is a University Professor only as long as there is a University in which he teaches and there are students that attend to his lectures, but as he teaches and behaves as a University Professor he contributes with his behaviour to create the University as a space to which students come and in which he is a University Professor. His identity as a University Professor (in fact any individual identity), is a systemic phenomenon, and the conservation of his identity as such (the conservation of any identity) is a systemic process. Indeed, our human identity is a systemic phenomenon, and in our opinion it arose in the primate evolutionary history to which we belong some three million years ago when languaging as a manner of living began to be systemically conserved generation after generation in the learning of the children of some small ancestral family.

As human beings we exist in a multidimensional interactional and relational space in which most dimensions remain outside our awareness. So we humans exist in a partially conscious and partially unconscious interactional and relational space in which most dimensions are unconscious. We (the authors) call this conscious and unconscious interactional and relational space our psychic domain of existence. Everything that we do takes place in us through our operation in our psychic domain of existence, or better, in our psychic existence, and as we change in the course of our living, our psychic domain of existence changes. The psychic identity that a human being has as he or she exists in the systemic dynamics in which he or she conserves his or her particular identity as such, arises in the relational space in which he or she lives as his or her self. Let us now attend to language. Language is a manner of living together in recursive consensual coordinations of consensual coordinations of behaviors, and must have arisen in the spontaneous coordinations of behavior that takes place when living together; sharing space and food in intimacy occurs. When some configuration of relations within a

systemic, or some configuration of relations between systems, are conserved in a system or in a set of interacting systems, everything else becomes open to systemic change around what is conserved in the history of the individual system, or in the history of the interacting systems. So, when living in language, and particularly in oral languaging, began to be systemically conserved generation after generation through the learning of the children as a manner of living, some three million years ago in some of the ancestral families of the primate lineage to which we belong, everything else became open to change around the conservation of living in language. Or, in other words, as living in language, and particularly in oral languaging, began to be conserved generation after generation in our ancestors, our human lineage began in a process of change that shaped our whole body (nervous system, face, larynx, manner of relation, the world lived) around living in oral language. Finally, language is not a domain of abstractions or symbols, it is a concrete domain of coordinations of coordinations of concrete doings, and symbols and abstractions are secondary to language. In these circumstances, we humans are not only languaging animals, but we exist in languaging, and we disappear as humans if language disappears. That is, it happens that we are in language not that we use language, that our being in language is our manner of existence as the kind of animals that we are as humans, and that our psychic existence includes the relational dimensions of our languaging being. Finally, a few words about emotions.

What we distinguish in daily life as we distinguish emotions are kinds of relational behaviors, not particular doings. And what we connote biologically as we speak of emotions referring to ourselves or to other animals, are body dynamic dispositions (involving the nervous system and the whole body) that determine what we or they can do or not do, in what relations we or they can enter or not enter, at any moment. As a result, different emotions can be fully characterized as different domains of relational behaviors or as dynamic body dispositions for relational behaviors. For example, love is the domain of those behaviours or dynamic body dispositions through which another arises as a legitimate other in coexistence with oneself, aggression is the domain of those behaviors or dynamic body dispositions through which another is denied as a legitimate other in coexistence with oneself, and fear is the domain of those behaviors or dynamic body dispositions through which one moves away from the circumstances in which one finds oneself. In these circumstances, love is not a virtue, or something special, it simply is a biological phenomenon as the domain of those behaviors through which social life arises and is conserved; it is simply the biological dynamics that constitutes trust and mutual acceptance in body and spiritual relations of nearness and intimacy.

B) A child learns his or her body of the other in the relations of free play and total trust in body acceptance with his or her mother. This has been shown by one of us, Dra. Gerda Verden-Zoller, in her work with mothers and children of families in the Bavarian Forest area during the last fifteen years. Furthermore, in her work, Dra Verden-Zoller has shown that a child also acquires self and social awareness in his or her relations of play with his or her mother, and develops the whole world he or she lives as an expansion of his or her bodyhood. Let me summarize some basic elements of the findings of Dra. Verden-Zoller. 1. The structure of a child, its body, its nervous system, its immune system ....., its whole bodyhood, changes following a course according to the life that it happens to live.

2. A child is at every instance a total complete being in itself with its own total requirements for its total realization, not a transit to become an adult, even as he or she changes in the process of growing and becoming an adult.

3. The way a child lives, the experiences to which he or she is exposed, determines what kind of an adult he or she becomes as he or she will have the structure as an adult that only permits him or her to reenact the emotioning that he or she has lived.

4. A growing human child learns the doings that are possible to him or her through his or her structure *Homo sapiens*, only as he or she is exposed to the relational situations that bring them forth along his or her upbringing.

5. As a child learns his or her body and the body of the others with whom he or she lives, the child learns to live the psychic space that is continuously created by the adults in the midst of which he or she lives. In other words, as a child creates the world that he or she lives as an expansion of his or her body, the child does so in the psychic space in which he or she lives.

The world that a child generates as he or she grows is an expansion of his or her bodyhood; the psychic space that a child generates as he or she generates the world that he or she lives, is the psychic space that he or she lives as he or she grows human. The psychic space in which a child lives as he or she grows human, is the psychic space of the human community in which he or she lives, or a modification of it. So children contribute to the systemic conservation of the kind of human being, or, better, of the kind of self, that they become as they become adults that generate the psychic space in which their children become humans. Normally, the kind of self that a child grows with is a kind of self that is different from the kind of self of the human community to which he or she belongs, and if this new kind of self is conserved in his or her children, a shift may be produced in the human identity and a new human community may arise.

We humans exist in the psychic space that we create in our living in our childhood, and our identity as humans of one kind or another, is defined by our psychic existence in conservation of the self that we become.

C) In order to speak about our origin, let us say first a few words about the kind of animals that we are. We humans are languaging animals, that is, we live in language as a manner of flowing in coexistence in consensual coordinations of consensual coordinations of behaviors. This manner of living must have arisen in the history that gave origin to us some three million years ago. This we said already. At the same time, we are loving animals. Love is a manner of relational behavior through which the other arises as a legitimate other (as an other that does not need to justify his or her existence in relation to us) in a relation of coexistence with oneself. Emotions, in general, are manners of relational behavior, and they take place in our bodyhood dynamics as body dynamics (the nervous system centrally included of course) that specify at any moment in what relations we can enter at that moment. Thus, aggression is the domain of those behaviors through which the other arises denied as a legitimate other in coexistence with oneself.

That we humans are loving animals is apparent in our daily life in that we become ill, at any age, when we are deprived of love through demands, pressures, or any relational behavior that denies us. Indeed, as one of us (Gerda Verden-Zoeller) has shown in her studies of the early childhood, it is fundamental for a child to grow in a relation of total trust and body acceptance in free play first in his or her relation with his or her mother (female or male since mother is a relation of care), and then as he or she grows in relation to the other persons with which he or she lives (in nursery, kindergarten and school), to become a self-respecting and socially integrated adult.

In order to explain how come that we humans are the kind of beings that we are as loving languaging animals, we shall describe three processes that must have taken place in the evolutionary history that gave origin to us.

1. Some five to six million years ago, the lineage of primates that gave origin to us began in a trend of continuous expansion of childhood in a manner that has progressively extended to involve now practically our whole life span. This is a frequent evolutionary phenomenon, and is called neoteny (extension of childhood), and occurs as a systemic conservation of a manner of living, in the terms that we described above. This process entailed in the history of our lineage not only the conservation of child like body and physiological features into adulthood, but also, and above all, the expansion of the emotioning of the child/mother relation as a relation of total mutual trust in body acceptance into the adult life. The result was the constitution of a lineage whose evolutionary history was centered on love as the basic emotion in community relations, not aggression or competition as has happened with other primates like chimpanzees. Mammals are loving animals in general, and this can be easily seen in how they become like children when they live in close relations of love with humans, but not all of them live in love along their whole life as the center of their manner of living that defines their identity. The identity of a species in terms of its manner of living is not genetically determined or conserved, but it is determined and conserved systemically in the relation, organism/medium. The genetic constitution determines a field of epigenetic developmental possibilities in a living system, while in the realization of its ontogeny and phylogeny, living system and medium change together congruently in the systemic conservation of a manner of living. And this is precisely what has happened in our evolutionary history in which the conservation of the relation of love in mutual trust and care proper to the mother/child as a life habit into adulthood, has been the peculiar feature of the manner of living in which both organism and medium have changed together congruently constituting the peculiarity that defines our lineage as a particular primate lineage.

2. Some four million years ago the females of our lineage began to live an expansion of their sexuality that went from a yearly cycle of desire for sexual intercourse and pleasure in the intimate body proximity of the other, to a continuous desire that matched the continuous sexual desire of males. We think that this must have happened as a feature of the neotenic trend of our lineage. Sex has to do with body acceptance in mutual trust in the joy and pleasure of the nearness and contact of the body of the other whether male or female. The first most basic consequence of this process was the separation of sexual

intercourse from reproduction as a feature of the course of living, and the establishment thereof, of sexual pleasure as the most fundamental manner of relation between the members of a group. The second basic consequence was the arising and development of permanent intimacy in tenderness, sensuality, and individually oriented sexuality, as the source of stability and joy of living together that resulted in a manner of living in small family communities of four to seven individuals.

3. Some three and a half million years ago, language, to live in language, must have begun as a manner of living in consensual coordinations of consensual coordinations of behavior conserved generation after generation in the learning of the children of the small families in which our ancestors lived as a result of the expansion of the sexuality of the females. In fact, what must have begun then, must have been living in the braiding of languaging and emotioning that we call conversations, and with that what began then was human living as a living in networks of conversations, so that everything human takes place in conversations as a flow in consensual coordinations of consensual coordinations of behaviors and emotions.

4. The evolutionary history of our lineage as a history of the conservation of a neotenic trend in the biology of love, is a history of social life also centered on consensuality and cooperation, not on competition or aggressive strife. As such our evolutionary history is a history of expansion of the capacities for consensuality, and, hence, of expansion of intelligence. Intelligence has to do with consensuality, intelligence is not primarily the capacity to solve problems, but it is the capacity to participate in the generation, expansion, and operation in consensual domains as domains of coordinations of behaviors through living together. Problem solving takes place as an operation in a domain of consensuality already established, so it is secondary to consensuality, not prior to it. Languaging, indeed, living in conversations as we humans do requires such an enormous capacity for consensuality, that we humans are all essentially equally intelligent, and the differences in intelligence that seem to exist between humans are not due to differences in their capacity for consensuality, but in their emotioning. In fact, due to the nature of intelligence as a relational biological phenomenon, different emotions affect it differently. Thus, ambition, competitiveness, anger, envy, aggression and fear, reduce intelligence, because they restrict the domain of openness for consensuality. This is acknowledged in daily life with popular expressions such as: he or she is blinded by anger or ambition. Only love expands intelligence, because love as the domain of those behaviors through which the other arises as a legitimate other in coexistence with oneself, opens us to see and to enter in collaboration. To live in love, in the biology of love, in the conservation of collaboration, in the acceptance of the other and in the acceptance of the conditions of existence as a source and not as an opposition, restriction or limitation, has been the fundament for the evolutionary trend of conservation of the continuous expansion of intelligence in our lineage.

We humans are the present result of these four basic processes. But there is more to our human condition than what is apparent in these reflections, both in the richness and range of being animals that live in conversations.

D) As neotenic, sexual, tender, and sensual animals, we humans are loving animals that become ill when deprived of love. But at the same time, as languaging animals that live in conversations, we humans can reflect on our circumstances, and we can invent, and have invented, rational systems in the form of religious, political, philosophical, and economic theories, that we have used to justify our doings and the negation of our emotions. As we have done that during the last ten thousand years, particularly in our occidental culture, we humans have become alienated from our basic condition of loving animals, and we have begun to live through those theories the rational justification of the systematic and systemic negation of the other (love) through the defense of transcendental values, and rational or revealed universal truths. In the blindness that the negation of love creates in our living, we stop seeing ourselves as part of the harmonious interconnectedness of all existence in the unending dynamics of life and death, and we begin to live guided by ambition, greediness and the desire for control and continuous relational difficulties that open ended population growth and misapplied technology, in the belief that it is the solution to all our problems have brought to us, and we are not happy. Indeed we suffer, because we become denied by the very same world and psychic existence that we are bringing about, as this is a world and psychic existence that denies the fundamentals of our existence as loving animals.

We humans are loving animals, or we still are. This means that love is the grounding of our human existence. Perhaps our species name should be called *Homo sapiens amans* since we have, or we still have, the physiology of loving beings at all ages. In fact, if we look at our individual human existence we can still see that what we search for in life is love, and all that we do in life, we do it to obtain love: we want to arise in our relations with others as legitimate beings that do not need to justify their existence with respect to them; we enjoy caring for others and we want to be cared for; we enjoy being caressed and we want to caress; we like to cooperate and do things with others for the pleasure of the company, and we like others to do things with us through the pleasure they have in doing so; we suffer under competition even though we have some sort of joy in the vanity of winning; we feel denied in relations of demand and exigencies, but we like to participate through invitation; we feel well in relations of trust and confidence; love is the first and more powerful medicine, and the doctor cures through love with the help of drugs and surgery only by creating the conditions for the body dynamics of self healing, not the reverse. Indeed love is the emotion that constitutes social life, and it is in social life where we exist as human beings and our human beingness is systemically conserved. We humans are loving animals, and our intelligence and creativity in the domain of human well being depends on our being loving animals. Thus, as we said above, all the emotions that entail the negation of the other, such as ambition, competitiveness, envy, or aggression, reduce intelligence. The only emotion that expands intelligence is love, and this is so because intelligence has to do with the acceptance of the legitimacy of the other and the expansion of the possibility for consensuality that such acceptance entails. Love is visionary. We think that other lineages of the human kind may have become extinguished through the negation of love in mutual destruction or ecological blindness in their domain of existence.

We are not talking about love as a virtue or as something good from a moral, religious, or philosophical perspective. We are talking biology, we are talking about our animal constitution as the particular kind of primates that we are as members of an evolutionary trend centered around the conservation of the biology of love and the expansion of intelligence. Love is the grounding of our existence as humans, and is the basic emotioning in our systemic identity as human beings. Furthermore, we shall remain humans of the kind *Homo sapiens amans*, only as long as love remains as the central emotion in the systemic conservation of our particular human identity as such, so that we do not become *Homo sapiens aggressans* through the conservation of living in aggression. It is as loving languaging beings that we can still become aware of what it is to be a human being, and it is only as loving animals that we can still create the conditions for the upbringing of our children in the mother/child relation and, later, in the schools and during their growth into adulthood, in a way that they grow and conserve themselves as self respecting socially conscious loving and caring adults by living with them in the biology of love. Love is our natural condition, and it is the denial of love what requires all our rational efforts, but what for, when life is so much better in love than in aggression? Love needs not to be learned, it can be allowed to be or it can be denied, but needs not to be learned, because it is our biological fundament and the only basis for the conservation of our human beingness as well as our well being. Love is not a virtue, indeed love is nothing special, it is only the fundament of our human existence as the kind of primates that we are as human beings. At difference from love, aggression needs to be cultivated or it fades away as we meet each other in the simplicity of our humanness. The systematic systemic denial of love through conversations that through rational arguments that use notions of efficiency, economy, progress, purity, obedience to god, or perfection, pretend to justify such negation, and is a carefully cultivated feature of our patriarchal culture. But the denial of love, is the source of all human suffering as an addiction to to righteousness and pain. Let us abandon this addiction, let us stop cultivating aggression as a manner of living that leads to the prevalence of the *Homo sapiens aggressans* that is already with us, let us live in the biology of love, let us open our intelligence in a conspiracy that leads to the prevalence of *Homo sapiens amans*. Why not? Is it difficult, or is it that we do not want to do so out of greediness, ambition, envy, or fear? Well, which ever the case, love is the cure as it opens our intelligence for reflection and give us the possibility to choose, and as we choose in awareness of our human condition, love becomes our basic reference, because the biology of love is still our ultimate ground and source of recovery of any distress though our realization as human beings.

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