

# Personogenesis

## - The Toddler's Worked Miracle -

By Otto E. Rossler  
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The human smile is present also in human laughter. This unique biological feature among primates entails a mental explosion in the playroom. No other human invention is more daring or loving.

Why do parents often sacrifice themselves on behalf of a non-understanding child? Roberto Benigni's movie "Life Is Beautiful" is an authentic fictional account. The bond of parenthood is usually explained in biological terms as an innate propensity of mammals. This view is too simplistic as regards humans. Could an improved scientific view of the mind of the toddler have any importance at a time when a million children are in jeopardy in one place on the planet? What is the value of a child as a person?

The special devotion of the human species shown toward its children is a phenomenon in need of explanation. The fact that some religions give them the highest ranking ("adorable") could be a relic from matriarchal times, but there could also be a scientific reason behind it. Modern society is based on a picture of human nature based on the self-interpretation of adults. In the post-Freudian age, sexuality is considered to be one of the strongest identity-giving forces in human nature; only maternal love is allotted a side niche. The fact that bonding is an even stronger drive than the named bodily pleasures was scientifically discovered by Konrad Lorenz in social animals and humans, but remains largely unknown. The 11-thousand year-old acceptance by the greater part of humanity of "subtractive warfare" is still adhered to by humankind in the absence of a democratic world government. Only once in human history did a smiling old man succeed in averting mutual annihilation (in South Africa). His first feat after being elected was building a tomb for his murdered child.

The toddler is the symbol of humanity. He is in the possession of the "kingdom of heaven" in the parlance of one religion. The young Dalai Lama was treated like that (and is still trying to pay back). But this is ideology, is it not? A toddler after all knows almost nothing about the world and believes almost anything you tell him. Santa Claus is the public symbol for this naiveté. The question "Who is still believing in Santa Claus?" is one of the accepted rites of passage toward grownupness. It announces emancipation away from the toddler's heart-moving stupidity.

But why then is so much positive motivation coming forth from this particular element of society? Hardworking men and women pay strange sacrifices to it as

far as their precious time budgets are concerned. Even state laws sometimes get amended to allow for greater flexibility in the official duty hours at least partly on behalf of the interests of this subgroup of society without which it admittedly would cease to exist. The toddler thereby acquires a new visibility in modern society.

## Bonding Explosion

Could it be that the special attention shown to the toddler is more than a mere fad? There is a genuine special light coming out of the playroom. Pestalozzi, Piaget, Fraiberg are the most famous names. Selma Fraiberg wrote “The Magic years” in 1958 and, 20 years later, “Insights from the Blind” about the linguistic development of her favorite young patient, Kathy. René Spitz discovered “hospitalism” in 1945 – the dying of young children deprived of a reliably present caretaker. Adults sometimes fall into the same, evidently insane, trap. The newspapers recently reported on a young Bosnian father in Europe who had abducted his 5-year-old daughter from his divorced wife to bring her to his home country and who threatened to kill the child (and himself) if the police would not let them continue on their journey – a dangerous criminal or a case of irrational bonding?

“Too much oxytocin” (the bonding hormone), you will perhaps comment. Or could it be that there is an additional secret hidden in the nature of toddlerhood which has eluded scientific attention up till now? Is there something special to the naiveté of the toddler that society has a right to learn about – a kind of knowledge that could even prove decisive for the future of our spaceship?

We herewith enter the field of “smile theory” – gelotology (smilology). The toddler is the smiler, as everyone knows. The strategic smiler, many would correct with a nostalgic shaking of the head that betrays their words. The smile is the toddler’s best weapon as it were. It embodies the force of the bond which he controls. This “bonding smile” is so strong it even is transspecific. A picture taken by Herbert Terrace on the occasion of his re-visiting his former linguistic student, Nim Chimsky (named in honor of Noam Chomsky), after a half-year-long separation can show the rewarding power of the smile of bonding. It is hard to understand how the photographer could bring himself to shooting the photo rather than opening his arms immediately: Fig. 1.

But something does not work with the chimp that works with the human toddler, you will rightly object at this point. Still it is not lack of intelligence, as current society would tend to believe. It has to do with the adult’s smiling back. Herb Terrace hopefully succeeded in doing just that: the mutual smiling bout, followed by embracing, probably worked out fine. But that would have been the end of it. No creative misunderstanding would have developed as a consequence.

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Overview/Smile Theory

g Smiling expresses bonding (greeting) and happiness (laughter). Both hardwired expressions

overlap markedly in a single primate (van Hooff phenomenon).

g An interactional instability (positive feedback) is the consequence. The instability is

compounded by the presence of mirror-competence in the toddler.

g The toddler becomes a parent-feeder spontaneously. This previously unexplained fact arises

in a heart-moving fashion: through the creation out of nothing, of the self-fulfilling

hypothesis of a benevolent intention being present on the other side, and a matching

benevolent intention on this side.

g This new type of explosion (as the two assumptions are being interactively verified) reveals

that the toddler is infinitely more powerful and infinitely more vulnerable than previously

thought. His voice is the strongest on the planet.

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“Misunderstanding“ is the key finding we are driving at. There is a misunderstanding involved on the part of the human toddler which transforms the world. It can, by the way, also be elicited in a chimp but that would be an heroic exercise much as with a blind human child (Selma Fraiberg was mentioned). We therefore switch back to a human toddler with unimpaired eye sight. He sees you smiling not only when you are happily re-united with him in the bonding interaction, but also when you are “just happy.“ This is the secret behind the human “psychosocial revolution“ (as it was called in 1968).

van Hooff's Finding

Independently and almost simultaneously, comparative anatomist and physiologist Jan van Hooff uncovered the secret of the human smile without pointing out any functional implications. When asked about this in 1973 at the conference on “Methods of Inference from Animal to Human Behavior,“ he was horrified. He was happy, he said in conversation at the conference, to have unearthed a hard scientific fact which is hard enough to accomplish to the satisfaction of your peers, but did not want to have anything to do with alleged “functional consequences.“ The example of the bomb unwittingly made possible by Einstein may have lingered in the background of his mind (smile bomb is a term that offers itself with the benefit of hindsight).

What van Hooff discovered goes beyond mere people-watching. Unlike the chimp's and all other primates' smile, he discovered and demonstrated painstakingly in a broad study, the human smile occurs not only when the individual is bonding, but also when it is just happy (laughing). The "smile of happiness" is lacking in the chimp and all other human relatives: The laughter ("wide open-mouth display" in the descriptive terminology of van Hooff) of all human relatives can never be confounded with their smile ("silent bared-teeth display"). The two facial expressions have converged toward virtual indistinguishability in a single primate species. So much about the hard facts. But why could they be considered dangerous?

The answer, my friend, is not blowing in the wind: The toddler predictably develops a misunderstanding. The innocuous smile of happiness of the caretaker (that charming expression on mom's face, remember?) is mistaken by the human toddler for another dose of bonding reward supplied at a distance. An embracing-and-cooing bout will often be triggered by this mistaken smile too – just as if it had been a genuine one. This functional consequence appears to be innocuous enough: The misunderstanding can only deepen the bond.

That is correct. In wolves, another strongly bonding species of mammals, tailwagging analogously signals two things: bonding and happiness. Apart from the deep emotional bond between dog and man, embarked upon some 15 000 years ago on the basis of this functional similarity perhaps (no other animal seems to share in it), no major functional implications appear to be implicit in the wolf. Van Hooff's disclaimer of 1973 appears well taken in this light.

### Mirror, Mirror on the Wall

Nevertheless, the experienced reader of a later century will perhaps tend to judge otherwise. There is an additional element to take into regard apart from the innate releasing mechanisms (ritualized facial or tail-bound expressions) focused on so far: Intelligence. Wolves are known to be highly intelligent beings but unlike the toddler, they lack a special form of intelligence called mirror-competence. All apes and dolphins and magpies and their kin are mirrorcompetent according to what is known to date (only elephants still wait to be tested due to a quirk of history). This hardwired simulational facility – whose presence or absence is tested with Gordon Gallup's proverbial red spot applied while the animal is asleep to the forehead or below the beak so it cannot be seen except in a mirror or closed-circuit TV – has direct consequences in the context of the emotional misunderstanding implicit in van Hooff's discovery.

The mirror competence which accepts delays enables the toddler to map the two activities of giving and taking (first, he was the recipient, next time the giver of one of those delicious red-cheeked apples) onto each other as being the same activity, seen from the one and the other vantage point.

In mathematical parlance this symmetry is called an “exchange symmetry” (in the terminology of quantum physicist Wolfgang Pauli).

The automatic exploitation of this symmetry by the toddler changes everything. Bonding bouts occur whenever one of the two is happily excited. (This occurs also in the wolf.) It is okay if it is originally the toddler who is happy as we saw: the additional bonding reward to both then only adds to the efficiency of the caretaker’s activity. However, the same thing is counterproductive if it is a moment of happiness of the adult that elicits the bonding bout. For then the toddler starts feeding the adult (for example). The young begins to bring sacrifices for the adult. Whether this may occur also in the wolf from time to time is a challenging observational question.

But the mirror-competent toddler not only starts to feed the adult, the exchange symmetry also gives a new meaning to the same interaction. The discovery of that symmetry by the toddler turns an innocuous misunderstanding into a functionally relevant one. Bonding bouts still occur whenever one of the two is happily excited, and effective sacrifices continue to occur. But this effective sacrifice is not a deliberate sacrifice in the case of the wolf (if it really occurs there). It also is not a deliberate sacrifice when it first occurs in the child. The toddler may even inexplicably burst-out into tears if the “present” is taken to be exactly that by the caretaker and not immediately returned. The whole thing is not that serious at first.

### The Parent-Feeder

Still, human children eventually become parent-feeders when not too hungry, as is well known (although the literature is curiously tight-lipped about this fact). What at first was not serious thus becomes serious. What is the reason? The added mirror competence makes for a volatile mixture.

Miraculously, two conscious suspicions held symmetrically by the toddler are mutually self-reinforcing in a positive feedback: The suspicion of a benevolent intention being active over there, and the suspicion of being able to generate a good feeling over there, suddenly interlock and make joint sense. It is a whole new game in the sense of Benigni.

What may still appear to the adult partner to be nothing but another bonding bout in high gear acquires an altogether new meaning for the toddler himself: The new consistency runs like a lightning through the landscape of all imaginable rewards on both sides. The Sun of the Good, of an infinite good will, breaks through as an experienced bilateral reality.

What the toddler is acquiring in the new playroom situation is the suspicion of benevolence being extended to him. This is not the programmed-in unlimited trust of a wolf toward another wolf that could explain Erik Erikson’s primordial

trust. It is an active suspicion, in the sense of a conscious test, trying to find out whether this might be intended. And – this is the startling element – this suspicion goes hand in hand with the exchange-symmetric anticipation of being perhaps able to elicit an analogous good feeling in the partner (active benevolence). Both suspicions are based on a misunderstanding. For the fact that the human caretaker presumably is already benevolent to some extent is no prerequisite for the positive feedback that is setting in.

## Psychosocial Revolution

This positive feedback is of an unfamiliar kind. Rather than building up more and more of the same, as in a standard spiral, it leaves every already trodden path and reaches out to cover any possible path and desire of the other and of himself. There is no precedent to this finding. It is a self-fulfilling prophecy based on a misunderstanding, but it creates a new reality. It is a new type of fire. Although there is no direct analog in science, the positive feedback in biogenesis as an “autocatalysis of autocatalyses” comes to mind as qualitatively related within the context of Teilhard’s second arrow in physics which leads toward his “Point Omega” (the first attractor of history).

The attribution of benevolence to another hypothesized intentionality is tantamount to the attribution of personhood. The attribution of personhood, however, is tantamount to the creation of personhood out of nothing through becoming a person oneself. Thus, what we have witnessed if no mistake was made is the origin-out-of-nothing of personhood: Personogenesis.

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(Insert somewhere around here in the text in larger letters:) Toddlers believe in benevolence because they have invented benevolence out of nothing themselves.  
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Every parent knows exactly what has just been described. Lovers too generally go through a second honeymoon like the one above, one of genuine mutual benevolence which leaves out nothing in its imaginary excitements. An infinite trust becomes a matter of fact. A third example is the religious mind which realizes that there is a “third force” in this act of creation. The mutually donated pleasures miraculously transport an infinite light.

But this is pathological?, you will probably ask at this point. Is this not a “transference” in the worst sense of psychoanalysis? On the contrary, it is the discovery of the sun of the good, the sun of love, a state which all later transferences try in vain to re-create. But is this claim not totally misplaced, owing to the fact that toddlers are very much asexual and sexuality is the only unlimited force according to Freud? It indeed has nothing to do with sexuality, only with genuine benevolence and justified trust (conscious bonding). In the

movie "Play Me the Song of Death," the young son tries to hold his father (who was cruelly made stand with a rope around his neck on his shoulders) as long as possible with all his force.

Infinite reliability for a minute is the hallmark of the toddler. No one blames him for that. The intention, after all, is unlimited in its scope:

"There is nowhere anything in the world that without restriction could be called 'good' except for a good will" (Kant). The good will is the toddler's invention.

Would what has just been seen not in a sense be horrible if true? The world would suddenly turn out to be full of previously unrecognized cruelties if the soul of a child is indeed so infinitely powerful and infinitely vulnerable at the same time. The Bosnian father was mentioned as a bad case of insanity. Or could it be that the police misunderstood him completely? Society is too goodnatured to be prepared for a truth of such caliber. But this appears impossible since society consists, after all, of nothing but knowing fathers and mothers and their close relatives?

Unfortunately, this cruel naiveté of the public is apparently the truth in the light of an historical example. Benigni surfaces a third time.

### The Deadliness of Lacking Knowledge

One of the co-responsible murderers of a past time (since he had provided the Zyklon B gas without knowing its purpose at first) could not bear the guilt and tried to break the news of a million children being threatened by a cruel death under make-believe showers. The world at large was not shaken wide awake when Kurt Gerstein tried to alert its consciousness. Even the imagination of the first public and religious emissaries and journalists contacted by him as multipliers of the truth, could not be triggered into understanding the scope of what was going on.

Fortunately, we say with a sigh of relief, our age is no longer that of the holocaust.

Our subject matter is the innocence of the public – its total lack of knowledge of what parenthood means. A cold-air death of a million children is currently setting-in in the Himalayas. Only a strategic airlift can cut it out, an operation not very much different from the one needed on that earlier day. Paradoxically, an unprecedented "tens of thousands" of foreign volunteers already try to intervene with all their might and at incredible personal risks. Nevertheless the world at large not only does not listen but is actually soothed into passivity by these people's activities: the only rational antidote (the airlift) is, paradoxically, prevented from being applied in time by the regular news coverage from random camera teams joining the one or the other private or nongovernment initiative. So harmless is society if the light of science does not guide it.

Society does not know what every parent knows as we saw. The mental bridge can apparently only be made in the minds of the many single individuals who try to help, not by the public at large. Society relies on the media and the media rely on their oath that they only have to report, not to speculate. That – to look into the future – is the task of science.

Science tells you that 3.5 million homeless people subjected to extreme cold in a secluded area, half of them children, will without a radical external effort not manage to survive to a high percentage. Many journalists and the world public know that. Still, catastrophes happen and there just was the Tsunami a year ago. But science says a second thing as we saw: Dying toddlers are the greatest tragedy of the universe. This piece of scientific information is new.

### Toddler Science

The present article if published by Scientific American online to date could be responsible for a change of mind in this matter that might still come almost in time. This would be a political effect, you might object.

But this is not true. Toddler science, if it became accepted, would with this success re-establish science on the planet as the source of a good explosion – the “love bomb” of the acceptance of the power of personhood.

That not the averaged-over anonymous forces of the market and of fashion are the strongest, but that acting humanely and scientifically and rationally is possible after all.

For some reason, the planet overlooked the workings of the mind of the toddler for centuries. Now that the secret has been lifted, if no mistake was made, the planet is likely to bemoan every year and month it did not know about the lightest and funniest truth of them all. It reads: The young children are king – We need to learn from them – They are the teachers. The “wintertent raisin-bombers” are on their way as a matter of course in consequence. I had a bad conscience for having mentioned them above because this dilutes science by politics. But as the reader will perhaps grant, the fact that science has been resurrected to its old primacy as a benevolent tool that can and does re-shape the planet is a possibly acceptable excuse. Some people just are able to smile. I did not see you, Jan, for 33 years but I am sure you still have the knack to laugh. Thank you, Roberto, for re-awakening the planet to the smile of a toddler. For J.O.R.

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The Author

Otto E. Rossler studied medicine in Tübingen, Germany, and obtained his doctoral degree with an immunological dissertation with Erich Letterer in 1966. While in the second year in 1961, he had the idea of an autocatalysis that grows not only quantitatively but also qualitatively as a model of the origin of life. Five

years later, he worked with Konrad Lorenz in Seewiesen on what later became the brain equation in 1973. A visiting appointment with Robert Rosen in Buffalo in 1969 led to the discovery of the Rossler attractor of chaos theory in 1975. Eight years later, he re-discovered 18-th century physicist Roger Joseph Boscovich's "second physics" under the name "endophysics." A recent hobby is the still unfinished proof of an ultra-low-frequency tired-light hypothesis that could extend the life of the universe in both directions. In 1994 he proposed Lampsacus, hometown of humankind on the Internet.

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More To Explore

The animal-man problem from the vantage point of the theoretical biology of behavior (in German). Otto E. Rossler in Schweizer Rundschau, Vol. 67, pages 529-532; 1968. Not yet available in English.

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Figure Caption/

The smile of re-union of Nim Chimpsky illustrating the toddler attractor Picture taken from Herbert S. Terrace's book Nim – A Chimpanzee Who Learned Sign Language; Eyre-Methuen, London 1979, page 92, as reprinted in "Die Sonne des Guten" by Otto E. Rossler in Thesis, Wissenschaftliche Zeitschrift der Bauhaus-Universität Weimar, pages 22-27; 1997, Issue 1, page 25.