

Arno Gruen

## **Altruism, Egoism and Dehumanization: The Denial of Empathy**

*Abstract:* To understand altruism, cooperation and egoism in the context of our evolution it is necessary to understand the nature of attachment formation between mother and child. However, the recent work on altruism and cooperation has defined these behaviors in terms of operations involving economic benefits, thereby negating the fundamental role that attachment formation and the resulting capacity for empathy play in our lives and evolution. Since the denial of empathy has political implications – namely positing the equating of cost/benefit calculations and the glorification of profit as basic to understanding human nature – this essay aims at a correction.<sup>1</sup>

Kenneth Clark, whose research led to the Supreme Court's desegregation of public schools in 1954<sup>2</sup>, pointed in his 1980 American Psychological Association Presidential Address to the neglect of empathy in psychological research.<sup>3</sup> What has changed within the last decade is, that empathy itself is being denied as a factor in interpersonal relationships. Much of the recent work on cooperation, altruism and egoism does not even mention its existence. It seems as if the role of attachment between mother and child as a key in the child's development of empathy is simply missing in the current thinking concerning the nature of human motivation.

### **Attachment Behavior and Human Motivation**

Recent articles on cooperation, altruism and selfishness by Harsanyi & Selton (1988), Fehr & Fischbacher (2003), Bowles (2004, 2006), Richerson & Boyd (2005), and Güreker et al. (2006), as well as work by Boyd (2006), Henrich (2006), Henrich et al. (2006), and the review by Wilson (2007), define these behaviors in terms of operations involving economic benefits. The design of these experiments is such, that participants will either opt for a free-ride provided by the contributions of other participants or try to avoid punishment. The incentives for behavior leading to cooperation or to selfish solutions are thus perceived in terms of monetary gain or loss. Cooperative behavior is seen as a function of sanctions, helping others as

---

<sup>1</sup> The editorial assistance and part-translation from German of Hildegard and Hunter Hannum is gratefully acknowledged.

<sup>2</sup> Clark et al. (2004).

<sup>3</sup> Clark (1980).

reducing "fitness"<sup>4</sup>, and that natural selection implies competition.<sup>5</sup> The underlying assumption is, that the incentives for behavior leading to cooperation are fundamentally motivated by considerations of gain or loss. The question of empathy as a factor in altruistic, cooperative or egoistic behavior is never considered; nor is the role of attachment between mother and child as a key to understanding human motivation.

The experimental games used in the cited studies reduce the possibilities of seeing human behavior in its fullest context since they narrow by definition cooperation to avoiding punishment. What humane development is about is thereby blocked off from sight. David Ingleby, at that time at the London School of Economics, wrote in his "Ideology and the Human Sciences"<sup>6</sup> that scientists perhaps unconsciously "present a model of man which dehumanizes him in the same way that their own society does; which obscures rather than clarifies the way in which that society's goals are mediated by the individual, and attempts to reify its values under the disguise of a spurious objectivity". The notion that human evolutionary history is characterized by different lines of hominoids having eradicated others may well be a reflection of values and interests of observers that are based on the nature of comparatively recent developments in the social order of our own lives.<sup>7</sup> As Galbraith noted, "(we) continue to assume that economic conditions must be the dominant influence on social thought and action".<sup>8</sup>

### **The Role of Empathy**

Human behavior cannot be isolated from the context of its development. That context includes of course the cultural setting within which that development occurs and which will reinforce or hinder the developments we are capable of. In claiming to objectify altruistic behavior a kind of magical trick is performed, that removes from observation the elements of behavior revolving around the human capacity for empathy.

However, human development and the ensuing nature of human beings cannot be detached from the functions inherent in our right hemisphere which are involved in the infant's ties to its mother and in the later attachment patterns of one adult to another.<sup>9</sup> Socially transmitted behavior has its origins in the attachment formation between mother and child.<sup>10</sup> Yet the role of attachment behavior as a key to human history has not been considered of importance in this work on cooperation and egoism.

---

<sup>4</sup> Boyd (2006).

<sup>5</sup> Nowak (2006).

<sup>6</sup> Ingleby (1970).

<sup>7</sup> Gruen (2006); see also Sampson (1981).

<sup>8</sup> Galbraith (1964).

<sup>9</sup> Azevedo (2002); Henry (1997); Van Lancker (1991).

<sup>10</sup> Harlow (1962), Harlow & Harlow (1969).

### **The Role of Attachment and Mothering in the Development of Cooperation**

John Bowlby was one of the first to point to the importance of attachment behavior between an infant and its nurturing caretaker for the formation of later social behavior.<sup>11</sup> Human newborns are particularly immature at birth from the point of view of their development.<sup>12</sup> Were the human neonate to have the time necessary to attain the state of development of the newborn ape, the total gestation period of the human would be some 21 months.<sup>13</sup> This makes the caring behavior and responsiveness to the needs of the newborn during this precarious period of development most crucial. Martha Welch proposes that the release of the anti-stress neuropeptide secretin is furthered by intensive maternal nurturing.<sup>14</sup> Since stress increases the level of cortisol, a deficit in nurturing will result in a dysregulation of the infant's basal and reactive levels of this hormone.<sup>15</sup> And when this process is accompanied by the denial of the child's pain (that is, the mother/father responds to its pain with coldness and/or punishment), then the capacity for empathy will be curtailed.<sup>16</sup> And when people are diminished in their ability to experience the pain of the other, empathic behavior will be reduced. It is then that cooperation, rather than being a matter of the heart, can become a function of purely economic and/or punishment pressures.

The newborn's needs revolve around satiation of food, intake of liquids, restoration of muscular and nervous organization, sleep and awakening from it with restored energy, removal of tension, relaxation, and a generalised state of equilibrium. "If," writes Ashley Montagu, "we define love, from a purely biological standpoint, as the caring behavior that confers survival benefits, then these may be regarded as neoteneous traits... We may therefore infer that no early population of human beings could have survived had it not been for the dominant role that love and cooperation played in holding them together."<sup>17</sup> Cooperation is a function of this early attachment behavior if – as Harlow and Harlow have shown for rhesus monkeys<sup>18</sup> – mothering has not been interfered with. On the other hand, inadequate mothering produces individuals who in turn are abusive and perpetuate with their offspring what their own experience has been. They thus create for their offspring a world of danger. But when nurturing conditions are appropriate, humans as well as chimpanzees acquire cooperative relationships and work purposively together toward common goals.<sup>19</sup> The positive expectations that develop in the neonate towards its world are steered by diffuse as well as precise perceptions and rhythms. But such a development comes about only when there is a readiness in the infant to turn

---

<sup>11</sup> Bowlby (1969).

<sup>12</sup> Portmann (1944), Bostock (1958), Kovacs (1960), Montagu (1961, 1981).

<sup>13</sup> Portmann (1944).

<sup>14</sup> Welch (2004), Welch et al. (2004).

<sup>15</sup> Welch et al. (2004).

<sup>16</sup> MacLean (1987), Gruen (1997).

<sup>17</sup> Montagu (1981).

<sup>18</sup> Harlow (1962), Harlow & Harlow (1969), Harlow et al. (1971).

<sup>19</sup> Nissen & Crawford (1936).

towards its surrounding stimulus world.<sup>20</sup> It is on the basis of such a positive approach to the stimulus world that individual development and evolution have taken their course and not on the basis of a fight for survival, as so much current evolutionary theory proposes.<sup>21</sup> This readiness to turn towards the surrounding world is made possible from the beginning of life by the organism's capacity to approach stimuli rather than withdraw from them. Withdrawal is often conditioned by inadequate mothering and results in defensiveness, destructiveness and reduction of empathy.<sup>22</sup> It is because of such reduction of empathy that domination and egoism rather than cooperation become synonymous with "survival". For this reason Schneirla made the point that domination reduces the psychological level of group integrity and therefore does not contribute to the survival of the best.<sup>23</sup> Societies which give their infants the greatest amount of affection are characterized by low infant physical pain, low religious activity, a low rate of theft and negligible or absent killing, mutilating or torturing of the enemy.<sup>24</sup> It is therefore the quality of the infant's tie to its mother that determines its later attachment as adult to other adults.

Galt observes, "As an analytical statement and not simply a value judgment, it may be said that from the standpoint of breadth of social organization and multiplicity of interindividual relationships a cooperative pattern represents the fuller attainment of human psychological resources."<sup>25</sup> Factors such as personal gain and domination "emphasize individualistic motivation (and therefore) represent only a partial realization of group resources, on a lower psychological level, on which the clash of different subgroup motivations increases intragroup conflict and promotes tensions which make for social disorganization."<sup>26</sup>

Studies with chimpanzees<sup>27</sup> show that infrahuman primates plastically acquire cooperative relationships under appropriate conditions, working purposely together toward common goals. Dominance behavior, on the other hand, primarily egoistic in its aim, has been seen as a primary explanatory factor in primate behavior. Yet it appears only under conditions in which positive factors unifying group activity are weak. Such conditions are brought about when weaning of the young occurs abruptly in mammals, thereby enforcing separation from family conditions. This in turn determines the subsequent group behavior and the development of individual aggressiveness. Thus, dominance relations (and therefore egotism) are indicative of weak social responsiveness. Psychological cooperation as found on the primate level, on the other hand, involves the ability to anticipate the social consequences of one's own actions and to modify them in relation to the group's goal. This is to say that a child, as Charlotte Bühler put it, is part of its mother long before it becomes an

---

<sup>20</sup> Beckord (1987).

<sup>21</sup> Schneirla (1959, 1965); Gottlieb (1992).

<sup>22</sup> Schneirla (1959), Denenberg (1964).

<sup>23</sup> Schneirla (1946).

<sup>24</sup> Prescott (1975); see also Henry (1963).

<sup>25</sup> Galt (1940).

<sup>26</sup> Schneirla (1946).

<sup>27</sup> Crawford (1937), Nissen & Crawford (1936).

individual for itself and before it can actively enter and join any group.<sup>28</sup> It is the experience of empathy that enables a child to grow into an adult who will help and cooperate with others rather than interact destructively and egoistically.

Emmy Werner in a longitudinal study from birth to 32 years showed that adults coming from underprivileged homes, but who grew up in a supportive environment in which they received positive attention when they were infants, were caring and helpful with their fellow human beings.<sup>29</sup> Judith Herman showed that about 20 percent of US soldiers in Vietnam, who never engaged in atrocities, were men who in their childhood has experienced empathic care.<sup>30</sup> As soldiers they were helpful and cooperative with their comrades, and never inhuman towards prisoners and the civilian population. Therefore to reduce cooperation and altruism to a question of monetary rewards is to reduce the richness of what human nature can be about.

What may be true of course is, that in addition to biased design, the populations tested in the cited experiments were deficient in empathy, or more likely that in seeking to establish statistical behavioral means, the experimenters neglected to pay attention to individual differences. While averages may say something about population trends, they do not differentiate differences in traits and their historical development. Block and Block in a recent 30 year longitudinal study<sup>31</sup> point to such a discrepancy in their sample between the men and women tested. Women with high self-esteem were warmly extroverted and deeply concerned about interpersonal relationships. The men in their sample, however, seemed self-focused, defensively critical, uneasy, and unready for connections with others.

### **Empathy Makes Humaneness Possible**

The ability to anticipate the social consequences of one's own actions is not primarily a capacity based on abstract functions of thought but of the organism's capacity for empathic perception. "Empathy is the capacity for participating in or a vicarious experiencing of another's feelings, volitions, or ideas and sometimes another's movements to the point of executing bodily movements resembling his".<sup>32</sup> This capacity develops with the beginnings of the autonomic nervous system and is part and parcel of the mutual interaction between mother and the developing fetus. The integration of these interactions in human beings seems to be localized in the right hemisphere.<sup>33</sup>

Furthermore, early stress damages the insula area of the cortex containing most of the "mirror neurons" that make people capable of empathic perception of the

---

<sup>28</sup> Bühler (1931).

<sup>29</sup> Werner (1989).

<sup>30</sup> Herman (1992).

<sup>31</sup> Block & Block (2006).

<sup>32</sup> Clark (1980).

<sup>33</sup> Henry (1997), Holowka & Petitto (2002), Bekkering (2002), Joseph (1992), Shapiro et al. (1997), Wittling (1997), van Lancker (1991).

emotional state of others.<sup>34</sup> "...the turning off of the empathic insula is responsible for all in-group/out-group splitting when people enter their violent alters<sup>35</sup> in wars. Without this turning off of empathy in the war trance, mass violence is impossible".<sup>36</sup>

The capacity to care for others is not a function of the degree of "civilization" attained.<sup>37</sup> It has little to do with learning as an intellectual process but rather with what Paul D. MacLean has called a "visceral" aspect of learning<sup>38</sup> (the fronto-temporal portion of the limbic system), which is mediated by empathy – that is, the capacity to identify one's own feelings and needs with those of another person. (Recent work by neuroscientists on neural activity that mirrors not only the movements but also the intentions, sensations, and emotions of the people around us, may well lead to further understanding of the neural mechanisms for empathy, writes Greg Miller.<sup>39</sup>) Empathy develops differently in people depending on their attachment experience. MacLean found that when empathy is not stimulated, as when pain is denied, it fails to develop and thus cannot lead to an identity defined as humane.<sup>40</sup> Jaak Panksepp has suggested that the denial of pain prevents the release of opioids, especially endorphins.<sup>41</sup> Endorphins not only are involved in the process of alleviating pain, they also further social attachment and bonding. And here it is the kind of mother-child attachment which develops, that will determine the individual's motivational structures in regard to cooperation and egoism. The motivation for either cooperation or egoism resides in the capacity for or, respectively, curtailment of empathy. This ability is not only a human attribute; animals in general perceive the nature of another's emotional state by empathic means. Rhesus monkeys have been shown to respond to facial gestures of other rhesus monkeys on the basis of such perception.<sup>42</sup> And it has recently been experimentally observed that mice can respond to the pain of other mice.<sup>43</sup>

Caring for others as an aspect of interpersonal relations must be intimately tied up with the nature of what human evolution is about. If this aspect of human nature has changed, then perhaps only within the past more or less 50,000 years of our history, and especially with the advent around 9,000 years ago of the so called higher civilizations, based on possession, domination, and power, all egoistical qualities.<sup>44</sup> As David E. Stuart shows, it was the advent of surplus food, its hoarding and the development of social inequality that changed Anasazi culture in the Americas from a peaceful sharing society to one of elitism and ultimately war and

---

<sup>34</sup> deMause (2007), Iacoboni (2005).

<sup>35</sup> for "alters" see: deMause (2002), p. 93; Goodman & Peters (1995).

<sup>36</sup> deMause (2007).

<sup>37</sup> Diamond (1974).

<sup>38</sup> MacLean (1967).

<sup>39</sup> Miller (2005).

<sup>40</sup> MacLean (1987).

<sup>41</sup> Panksepp (2003).

<sup>42</sup> Ghazanfar & Logothetis (2003).

<sup>43</sup> Langford et al. (2006).

<sup>44</sup> Morgan (1974), Margalit (2003).

destruction.<sup>45</sup> Interestingly, Samuel Bowles in a recent article suggests that economic incentives may be counterproductive in that they signal selfishness as an appropriate social response.<sup>46</sup>

To understand human evolution and human nature, we will have to understand our motives in their fullest context and not by reducing them solely to monetary gains and losses. We must incorporate what we know about the living interactions between child and mother as a factor in that evolution and in our understanding of ourselves. Jaynes has suggested that our consciousness may well be a function of a social order that detaches humans from the emotional meaning of their actions.<sup>47</sup> This of course does not deny that genes play a role in our psychic evolution. As Gottlieb pointed out, genes are always there, but the causes of development lie in the relationship between the two components gene and experience, not in the components themselves.<sup>48</sup> We must become conscious of the processes that make us incorporate the values of the existing nature of our social order, which may oppose our empathic heritage. To understand our past will necessitate an evolving understanding of all that contributed and continues to contribute to our becoming human and empathic. J. Z. Young emphasized that the behavioral equipment humans have received from the past history has been designed to ensure communication and cooperation.<sup>49</sup> When cooperation becomes merely a means to avoid pain or receive monetary gain, we are dealing with the results of a development gone awry. This has not always been so, as the studies by DeVore and Konner of the !Kung in the Kalahari desert<sup>50</sup> and by Weltfish of the American Pawnees<sup>51</sup> have shown. Therefore, the recent findings and reviews by, for the most part, economists in cooperation with evolutionary biologists<sup>52</sup> can be seen as reflecting a narrowing of consciousness which effectively dehumanizes our views of human beings, thus reinforcing political thinking and action devoid of love and compassion. "It is", writes the Dalai Lama, "... our ability to enter into and to share another's suffering, that is fundamental to the continued survival of our species".<sup>53</sup> And further: "To understand suffering... is to understand what empathy is...(and) that the feeling of community with all beings must be attained on the basis of the understanding that we are all united and reciprocally dependent on each another".<sup>54</sup>

To reduce the prevalence of dehumanization in today's society, it is necessary to promote the development of the conditions leading to the kind of mothering that prevents the dissociated stance which makes love and empathy impossible, but instead makes unity of being possible.

---

<sup>45</sup> Stuart (2000).

<sup>46</sup> Bowles (2008).

<sup>47</sup> Jaynes (1976).

<sup>48</sup> Gottlieb (1992).

<sup>49</sup> Young (1971).

<sup>50</sup> deVore & Konner (1974).

<sup>51</sup> Weltfish (1965).

<sup>52</sup> Vogel (2004).

<sup>53</sup> Dalai Lama (1999).

<sup>54</sup> Dalai Lama (2002).

## References

- Azevedo, I. (2002): Being human. *Science* 297 (2002), 194.
- Beckord, D. (1987): Pränatale Psychologie und Schwangerenberatung. *Dialog Spezial* 4 (Institut für Ehe und Familie, Wien 1987).
- Bekkering, H. (2002): Kinder imitieren mit Köpfchen. *Max Planck Forschung* 2 (2002), 7-8 .
- Block, J. / Block, J. H. (2006): Venturing a 30-year longitudinal study. *American Psychologist* 61 (4) (2006), 315-327.
- Bostock, J. (1958): Exterior gestation, primitive sleep, enuresis and asthma: study in aetiology. *Medical Journal of Australia* 2 (1958), 149-153, 185-188.
- Bowlby, J. (1969): Attachment and Loss. Vol. 1 (Hogarth, London 1969).
- Bowles, S. (2004): Microeconomics: Behavior, Institutions, and Evolution. (Princeton Univ. Press, Princeton 2004).
- Bowles, S. (2006): Group competition, reproductive leveling, and the evolution of human altruism. *Science* 314 (2006), 1569-1572.
- Bowles, S. (2008): Policies designed for self-interested citizens may undermine "the moral sentiments": Evidence from economic experiments. *Science* 320 (2008), 1605-1609.
- Boyd, B. (2006): The puzzle of human sociality. *Science* 314 (2006), 1555-1556.
- Bühler, C. (1931): The social behavior of children. In: Murchison, C. (ed.): Handbook of Child Psychology. (Clark University Press, Worcester 1931).
- Clark, K. B. (1980): Empathy, a neglected topic in psychological research. *Amer. Psychol.* 35 (1980), 187-190.
- Clark, K. B. / Chein, I. / Cool, S. W. (2004): The effects of segregation and the consequences of desegregation. *American Psychol.* 59 (2004), 495-501.
- Crawford, M. P. (1937): The cooperative solving of problems by young chimpanzees. *Comp. Psychol. Monogr.* 14 (1937), 1-88.
- Dalai Lama (1999): Ancient Wisdom. (Time Warner, London 1999).
- Dalai Lama (2002): Essence of the Heart Sutra. (Wisdom Publication, Sommerville 2002).
- DeMause, L. (2002): The Emotional Life of Nations. (Karnac, New York 2002).
- DeMause, L. (2007): The psychology and neurobiology of violence. *The Journal of Psychohistory* 35 (2) (Fall 2007), 114-141.
- Denenberg, V. (1964): Critical periods, stimulus input, and emotional reactivity: A theory of infantile stimulation. *Psychological Review* 71 (1964), 335-351.
- DeVore, I. / Konner, M. J. (1974). Infancy in hunter-gatherer life: An ethological perspective. In: White, M. F. (ed.): Ethology and Psychiatry. (University of Toronto Press, Toronto 1974).
- Diamond, S. (1974): In Search of the Primitive. A Critique of Civilization. (Transaction Books, New Brunswick 1974).
- Fehr, E. / Fischbacher, U. (2003): Review. *Nature* 425 (23) (2003), 785-791.
- Galbraith, J. K. (1964): Economics and the quality of life. *Science* 145 (1964), 117-123.
- Galt, W. (1940): The principle of cooperation in behavior. *Quart. Rev. Biol. Physiol.* 20 (1940), 1-186.
- Ghazanfar, A. A. / Logothetis, N. K. (2003): Facial expressions linked to monkey calls. *Nature* 423 (2003).

- Goodman, L. / Peters, J. (1995): Persecutory alters and ego states: Protectors, friends, and allies. *Dissociation* 8 (1995), 92.
- Gottlieb, G. (1992): Individual Development and Evolution. (Oxford University Press, New York 1992).
- Gruen, A. (1997): Der Verlust des Mitgefühls. (dtv, München 1997).
- Gruen, A. (2006): The role of empathy and mother-child attachment in human history and in the development of consciousness: The Neanderthal's gestation. In: Galler, F. / Janus, L. / Kurth, W. (eds.): Fundamentalismus und gesellschaftliche Destruktivität. *Jahrbuch für Psychohistorische Forschung* 6 (2005). (Mattes, Heidelberg 2006), pp. 303-333.
- Gürerk, O. / Irlenbusch, B. / Rockenbach, B. (2006): The competing advantages of sanctioning institutions. *Science* 312 (2006), 108-114.
- Harlow, H. F. (1962): Social deprivation in monkeys. *Scientific American* 207 (1962), 136-146.
- Harlow, H. F. / Harlow, M. K. (1969): Effects of various mother-infant relationships on rhesus monkey behaviors. In: Foss, B. M. (ed.): Determinants of Infant Behavior. Vol. 4 (Methuen, London 1969).
- Harlow, H. F. / Harlow, M. K. / Suomi, S. J. (1971): From thought to therapy: Lessons from a primate laboratory. *Amer. Scientist* 59 (1971), 538-549.
- Harsanyi, J. C. / Selton, R. (1988): A General Theory of Equilibrium Selection in Games. (MIT Press, Cambridge 1988).
- Henrich, J. (2006): Cooperation, punishment, and the evolution of human institutions. *Science* 312 (2006), 60-61.
- Henrich, J. / McElreath, R. / Barr, A. / Ensminger, J. / Barrett, C. / Bolyanatz, A. / Cardenas, J. C. / Gurven, M. / Gwako, E. / Henrich, N. / Lesorogol, C. / Marlowe, F. / Tracer, D. / Ziker, J. (2006): Costly punishment across human societies. *Science* 312 (2006), 1767-1770.
- Henry, J. (1963): Culture Against Man. (Holt, New York 1963).
- Henry, J. P. (1997): Psychological and physiological responses to stress: The right hemisphere and the hypothalamus-pituitary-adrenal axis: an inquiry into problems of human bonding. *Acta Physiol. Scand.* (Suppl.) 10 (1997).
- Herman, J. L. (1992): Trauma and Recovery. (Basic Books, New York 1992).
- Holowka, S. / Petitto, L. A. (2002): Left hemisphere cerebral specialization for babies while babbling. *Science* 297 (2002), 1515 .
- Iacoboni, M. (2005): Understanding others: Imitation, language, empathy. In: Hurley, S. / Chater, N. (eds.): Perspectives on Imitation: From Mirror Neurons to Memes. Vol. I (MIT Press, Cambridge 2005).
- Ingleby, D. (1970): Ideology and the human sciences: Some comments on the role of reification in psychology and psychiatry. *Human Context* 2 (2) (1970), 159-187.
- Jaynes, J. (1976): The Origins of Consciousness in the Breakdown of the Bicameral Mind. (Houghton, New York 1976).
- Joseph, R. (1992): The Right Brain and the Unconscious. (Plenum, New York 1992).
- Kovacs, F. (1960): Biological interpretation of the nine-month duration of human pregnancy. *Acta Biologica Magyar, Tudom. Akad.* 10 (1960), 331-336.
- Langford, D. J. / Crager, S. E. / Shehzad, Z. / Smith, S. B. / Sotocinal, S. G. / Levenstadt, J. S. / Chanda, M. L. / Levitin, D. J. / Mogil, J. S. (2006): Social modulation of pain as evidence for empathy in mice. *Science* 312 (2006), 1967-1970.

- MacLean, P. D. (1967): The brain in relation to empathy and medical education. *Journal of Nervous and Mental Disease* 144 (1967), 374-382.
- MacLean, P. D. (1987): Triune brain. In: G. Adelman (ed.): *Encyclopedia of Neuroscience*. Vol 2, Appendix 1 (Birkhäuser, Boston 1987).
- Margalit, A. (2003): After strange gods (a discussion of the Mari). *New York Review of Books*, October 9, 2003.
- Miller, G. (2005): Reflecting on another's mind. *Science* 308 (2005), 945-947.
- Montagu, A. (1961): The origin and significance of neonatal and infant maturity. *J. Amer. Med. Assoc.* 178 (1961), 156-157.
- Montagu, A. (1981): *Growing Young*. (McGraw-Hill, New York 1981).
- Morgan, L. H. (1974): *Ancient Society and Research in the Lines of Human Progress*. (Henri Smith, Glauster 1974, originally 1877).
- Nissen, H. W. / Crawford, M. P. (1936): A preliminary study of food-sharing behavior in young chimpanzees. *J. Comp. Psychol.* 22 (1936), 383-419.
- Novak, M. A. (2006): Five rules for the evolution of cooperation. *Science* 314 (2006), 1560-1563.
- Panksepp, J. (2003): Feeling the pain of social loss. *Science* 302 (2003), 237-239.
- Portmann, A. (1944): *Biologische Fragmente*. (Schwabe, Basel 1944).
- Prescott, J. W. (1975): Body pleasure and the origins of violence. *The Bulletin of The Atomic Scientists* 31 (1975), 10-32.
- Richerson, P. J. / Boyd, R. (2005): *Not by Genes Alone: How Culture Transformed Human Evolution*. (Univ. Chicago Press, Chicago 2005).
- Sampson, E. E. (1981): Cognitive psychology as ideology. *Amer. Psychol.* 36 (1981), 730-743.
- Schneirla, T. C. (1946): Problems in the biopsychology of social organizations. *J. Abnorm. Soc. Psychology* 41 (1946), 385-402.
- Schneirla, T. C. (1959): An evolutionary and developmental theory of biphasic processes underlying approach and withdrawal. In: Jones, M. R. (ed.): *Nebraska Symposium on Motivation*. Vol. 7 (Univ. Nebraska Press, Lincoln 1959), pp. 1-42.
- Schneirla, T. C. (1965): Aspects of stimulation and organization in approach/withdrawal processes underlying vertebrate behavioral development. In: Lehrman, D. S. / Hinde, R. / Shae, E. (eds.): *Advances in the Study of Behavior*. (Academic Press, New York 1965), pp. 1-71.
- Shapiro, D. / Jamner, L. D. / Spence, S. (1997): Cerebral laterality, repressive coping, autonomic arousal, and human bonding. *Acta. Physiol. Scand.* 640 (1997, suppl.), 10.
- Stuart, D. E. (2000): *Anasazi America*. (Univ. of New Mexico Press, Albuquerque 2000).
- Van Lancker, D. (1991). Personal relevance and the human right hemisphere. *Brain and Cognition* 17 (1991), 64-92.
- Vogel, G. (2004): The evolution of the golden rule. *Science* 303 (2004), 1128-1131.
- Welch, M. (2004): Secretin: hypothalamic distribution and hypothesized neuroregulatory role in autism. *Cellular and Molecular Neurobiology* 24 (2004), 219-241.
- Welch, M. G. / Welch-Horan, T. B. / Anwar, M. / Ludwig, R. J. / Power, S. A. / Ruggiero, D. A. (2004): Behavioral anatomy of intensive maternal nurturing in childhood disorders. *Society for Neuroscience Press Book*, 34th Annual Meeting (2004).
- Weltfish, G. (1965): *The Lost Universe*. (Basic Books, New York 1965).

- Werner, E. E. (1989). High-risk children in young adulthood: A longitudinal study from birth to 32 years. *American Journal of Orthopsychiatry* 59 (1) (1989), 72-81.
- Wilson, D. S. (2007): One for all. *American Scientist* 95 (2007), 269-271.
- Wittling, W. (1997): The right hemisphere and the human stress response. *Acta Physio. Scand.* 640 (suppl., 1997), 10.
- Young, J. Z. (1971): *An Introduction to the Study of Man.* (Clarendon, Oxford 1971).