

RCC Perspectives

Environment, Culture, and the Brain
New Explorations in Neurohistory

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The experiment on healing environments described in this volume was conducted by an international team of scientists made up of **Evgeny Gutyrchik, Lukasz Smigielski, Janusch Blautzik, Maximilian Reiser, Yan Bao, Ernst Pöppel, and Edmund Russell**. They are affiliated with the following institutions: the Human Science Center and the Institute of Clinical Radiology at LMU Munich, the Parmenides Center for Art and Science in Pullach, Germany, the Department of Science, Technology and Society at the University of Virginia, and the Department of Psychology and Key Laboratory of Machine Perception at Peking University.

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Neurohistorical and Evolutionary Aspects of a History of Shame and Shaming

Neurohistory can be conceptualized in the broader context of the history of the body or, more specifically, as part of the historical interaction of the human body with the environment. The moderating mechanisms between body and environment are adaptation and behavior, with the latter also taking the complex form of human culture. From this perspective, neurohistory comes into play when the adaptive shape and the particular structure of the human brain are concerned. One major function of the brain is to “control” the body and its functions, and neurohistorical approaches might in the future help us better understand how these interactions of body, brain, and environment have shaped culture and vice versa. Bodily adaptations have been integrated into human culture in a coevolutionary process, and the cultural representations of these adaptations possess a particular importance in social interactions. One particularly interesting illustration of this coevolutionary process is the social and regulating function of the moral emotion shame.

Jaak Panksepp (1998) coined the term “affective neuroscience” to emphasize that research on emotions should be established as an important branch of the neurosciences. Recently, the social aspect of the emotional brain has been integrated in what is now called “social-affective neuroscience” or simply “social neuroscience.” This approach, which is connected to the work of António Damásio, has shown the extraordinary importance of emotions for the evaluation of situations in social contexts. If we understand neurohistory as a subdiscipline of history that is especially concerned with the implications of neural states for human behavior, the social use of emotions for conflict regulation in historical societies can be described as a part of neurohistorical investigation of the interaction between the brain and social behavior.

In a research project on the cultural usage of shame and shaming in penal law, the insights of affective neuroscience into the physiological design of emotions can help provide a better understanding of emotion-triggered behavior in historical populations. Recent advances in neurophysiology and the usage of new methods of neuroimaging have boosted our knowledge about the function of different structures of the brain that

host moral emotions such as shame and guilt (see Wagner et al. 2011). We know that the limbic system interacts with the orbitofrontal cortex to store emotional memories and produce the "shame reaction," but we don't know yet how exactly this is done (Beer et al. 2006; see also Jones 2004). As these moral emotions play a crucial role in the enforcement of normative behavior in groups, they are firmly established in adaptive cultural domains like religion, law, and education.

Therefore, knowledge about the human body and brain is important for understanding past and present social behavior and regulation. Research on the neurophysiology of blushing, for instance, can help historians to understand that this visible sign of an emotional state is a hardwired function of the sympathetic system (cf. Mariauzouls 1996) and can thus be found in all humans worldwide. On the other hand, physiological markers like blushing are used in many different and sometimes even contradicting ways in specific cultures, for example in the European juridical sphere to evaluate the trustworthiness of statements or, in the context of codes of modesty, as a sign of arousal.

Shame has been used in different religions to promote cooperative behavior. Especially in the context of Christian penitential practices, shame played a major role in reforming unwanted behaviors through voluntary or involuntary (self-)punishment. Public penance in the Middle Ages and early modern times made use of public exposure and shaming of those who offended against the moral standards of the community. This strategy was adopted by secular powers from the later Middle Ages onwards; the educational and penitential character of the punishments was partly inherited from the Christian doctrine of penance. In particular, offences and misdemeanors, such as fraud, perjury, oath breaking, scolding, adultery, and other kinds of transgressions against one's community entailed shaming punishments such as the pillory, public nakedness, exposure on a tumbrel, or riding backwards on a donkey. The capacity of the human brain to feel shame has been exploited in various ways throughout human history, and complex societies have developed sophisticated means to inflict shame on group members who misbehave and transgress against their neighbors and friends. Shaming punishments rely on strong in-group relationships and seem to have been most widespread in Europe during the later Middle Ages in towns and cities where members were tied together by civic oaths and relied on mutual trust (cf. Wettlaufer 2008, 2010, 2011b).

Although shame is a universal human feature and shaming punishments are widespread and known in virtually all human societies, there are interesting cross-cultural similarities and differences in the social usage of shame. In Japanese society, for instance, which is often labeled as a shame culture, formal public exposure and shaming unconnected to capital punishment only became fashionable in penal law during the Edo Period from the early seventeenth century onwards, and the introduction of such practices seems to be related to a Neo-Confucian movement in that period (Wettlaufer 2011a; Wettlaufer and Nishimura 2012). The contrast between medieval Europe and Japan shows that the cultural expression of universal human emotions can vary dramatically in the ways they are institutionalized in the laws and customs of a society. However, the behavior ultimately has a biological basis.

In this perspective, all historical behavior that is strongly related to the human body—including social history as a whole—is a candidate for new research stimulated by neurohistory. It has been argued that the history of drug use and abuse should be considered relevant topics in neurohistory (Smail 2010). This would also create repercussions for metatheories like the civilizing process theory of Norbert Elias. If we admit a place to neuroscience as an auxiliary science to the history of the body, we should also bear in mind what connected disciplines like endocrinology can contribute (cf. Albers et al. 2002). In fact, the impact of the physiology of the human body on history has been largely underestimated in traditional historical research. Only an evolutionary approach can integrate all aspects of human physiology that appear relevant for historical behavior and patterns in cultures (cf. Russell 2011). Other especially relevant domains include the history of sexuality, reproduction, power or hierarchy, and privileges (cf. Wettlaufer 2002). Neurohistory can play a central role in understanding the interaction between people and their environment through culture. Since the brain is shaped in an adaptive manner to fit with the environment and vice versa, knowledge about its structure and function is vital for evaluating and understanding human social interaction in historical societies.