Editorial

Harald Atmanspacher
Editor-in-Chief

The present issue of *Mind and Matter* marks the beginning of our collaboration with Imprint Academic as our publisher, and we are very grateful for Anthony Freeman’s warm and informative welcome greetings on the preceding page. There is nothing to be added except that we have all reasons to looking forward to an enjoyable and successful cooperation with Imprint Academic.

“Altered states”, the topic of this issue, can refer to many themes. Most common is its allusion to altered states of consciousness, but additional, less pronounced connotations may include alterations of social behavior or even anomalies in the physical world of matter. This issue contains articles regarding aspects of all those different domains.

The contribution by Vaitl and Ott addresses altered states of consciousness (ASC) from the perspective of psychophysiology. Complementing the multitude of much earlier work that was essentially based on phenomenological descriptions and questionnaire data, they try to elucidate neurophysiological mechanisms underlying the diverse and multi-faceted changes in subjective experiences that constitute ASC. Their work was carried out within an international research consortium for the study of ASC in which a number of laboratories in the EU, in Switzerland, and in the USA participated.

Among the many kinds of ASC, Vaitl and Ott focus in particular on psychophysiological features of hypnosis and trance. They report distinct electrophysiological features as indicators for high or low susceptibility for hypnosis, and the induction of trance states was found to be closely related to the synchronization of cardiovascular rhythms. Finally, some currently discussed neurofunctional mechanisms involved in ASC are outlined: regulation of arousal and selective attention, the role of sensory input and functional (dis)integration in illusions and hallucinations, and the alteration of consciousness due to specific neurotransmitter systems.

Schulkin’s paper reviews emotions such as moral sensibility and social cohesion from the viewpoint of behavioral neuroscience. After some introductory historical remarks relating the discussion of moral sense back to Charles Darwin and Adam Smith, he discusses in detail the role of the gustatory and visceral systems and the basal ganglia for moral appraisal as, e.g., based on disgust. He argues that, in general, emotions often utilize visceral information for appraisals of events. Although not mentioned explicitly, this adds to the significance of the enteric nervous system for the behavioral and social functioning of individuals.
Particularly interesting in connection to recent exciting work on “mirror neurons” is Schulkin’s discussion of the sentiments of compassion, sympathy, and empathy. Together with the recognition of beliefs and desires of others, these are obviously fundamental for establishing social cohesion. Without the interindividual contact implied by such cohesion it would be difficult to understand moral conflict. In conclusion, Schulkin addresses diminished social capacities and the devolution of moral appraisals as impairments due to prefrontal cortical damages, as exemplified by the famous case of Phineas Gage.

Metzinger’s article presents a neurophenomenological conjecture about the origin of the pre-scientific concept of a “soul”, considered as a protoclass of our contemporary notion of mind. He relates the emergence of the notion of a soul to first-person reports about the experience of a specific neurophenomenological class of states: so-called out-of-body experiences. A large part of his contribution describes the phenomenal features of such experiences in detail.

Metzinger proposes that the concepts of soul and mind are deeply interrelated by a common causal factor in the human brain, i.e. by neural properties which were recently discovered and underlie the cluster of phenomenal features constituting out-of-body experiences. On this basis he conjectures that a particular neurofunctional substrate led human beings at different times, and in widely varying cultural contexts, to postulate the existence of a soul and to start developing a theory of mind.

Moreover, there are intriguing philosophical implications of this proposal. The author’s own theoretical approach to understand self-models suggests to interpret out-of-body experiences as “perceptualized” versions of reflexive self-consciousness, as (partially) separated subject- and object-components of a subject-object relation that, under normal conditions, is not experienced in terms of its individual components. This example illustrates in remarkable detail how results of cognitive neuroscience can contribute to a better understanding of long-standing problems in the philosophy of mind.

The concluding paper by Ehm in this issue addresses a topic deserving the notion of altered states of matter as well as of mind. He re-investigates a large set of experiments designed to study the question of whether or not mental intentions of subjects are capable of “influencing” the behavior of material physical systems. Ehm re-analyzed the data used in an earlier meta-analysis (a statistical study of combined results of many experiments) by Radin and Nelson with advanced statistical methodologies. In particular, he succeeded in implementing both random effects modeling and possible selection effects, and found a way to combine their results in an overall significance assessment.

It is important to consider random effects of experiments whenever systems show variability in addition to variance, i.e. results are scattered
not only due to measurement error but also due to genuine differences in parameters. Such situations are generic in biology and psychology. With respect to selection effects, it should be pointed out that the well-known topic of publication bias, i.e. publication of significant results only, is only one among many options for selection effects. Ehlm addresses selection in a general sense which ultimately includes the selection of model parameters or modeling strategies as well. As an important general result he finds that even an insignificant selection effect can influence the overall significance of an experimental effect seriously.

From the statistical modeling perspective of Ehlm’s work, the evidence for anomalous mind-matter correlations found by Radin and Nelson appears less significant. However, other results may be possible if other modeling strategies consistent with the data are applied. Moreover, statistical analyses always remain inconclusive in a very basic manner as long as a theoretical understanding of statistically evident effects (if there are any) is missing. The key question that mind-matter experiments of the mentioned kind have been intended to resolve remains open: Are there relations between mind and matter which go beyond the established corpus of scientific knowledge?