Introduction: Technologies of the Mind

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This Special Issue of Journal of Cognition and Culture explores the roles played by technologies in the cognitive lives of human beings. The contributions found below identify and analyse connections between particular technological practices and particular solutions to cognitive tasks in concrete real-world settings. Though the papers involve a variety of empirical foci and methodologies, they are united by a common field of enquiry: What are the cognitive implications of the cultural innovation, transmission and practice of technologies?

A simple, initial example may be provided by cases of conceptualization and communication within the cognitive sciences, involving wheels and wheeled transport. Cognitive anthropologist Terrence Deacon (2006) has described consciousness as “the hole at the wheel’s hub”. By creating a metaphorical association between the concrete artefactual structure of wheel morphology and an elusive, ill-understood aspect of human mental life, Deacon attempts to capture the outlines of what is sometimes referred to as an “eliminativist” solution to the hard problem of consciousness: that consciousness may not exist in itself as a particular cognitive process or brain state but may be an emergent phenomenon – an effect of the way that different cognitive faculties and configurations of the human mind come together systemically. Another case is cognitive psychologist Frank Keil and philosopher of mind Robert Wilson’s comforting observation that “The sensory and cognitive systems that feed our explanatory abilities are themselves often reliable sources of information about what happens in the world and in what order it happens. Surely our explanatory capacities are doing more than spinning their wheels in the quest to get things right” (Keil and Wilson, 2000: 10). Here, Keil and Wilson grasp the ability of the human mind to produce understandings of the world that have some degree of causal validity and applicability by contrasting this success with the failure of a motor vehicle to move forward when its wheels do not find a substrate suitable for allowing the power from its internal combustion
engine to be transmitted to the ground. In both of the examples just cited, cognitive scientists exploit very concrete technological structures and practices in thinking about highly abstract phenomena. Given the particular technologies involved in these cases, the scholars in question rely on outcomes of some five-and-a-half thousand years of technological history to be able to make conceptually complicated matters more manageable in the particular ways that they do. Without the development, transmission and transformation of wheels and wheeled vehicular transport through prehistory and history, they would have had to solve these particular conceptual challenges differently. As demonstrated by the papers of this issue, however, employment of technological experience in the type of associative or analogical cognition just exemplified constitutes only one of many ways in which technological practices may be involved in cognitive achievement. But before turning to the cases presented below, it may be useful to consider more broadly what it is that should make technologies interesting to the cognitive study of human life and culture?

Humans have an unrivalled ability and propensity to develop technologies for manipulating the world. A technology may be defined as a specific, learned form of material activity or practice that often, but not always, involves extrasomatic artefacts, structures or media. A technology is purposive; it is a way of doing something and is contingent on the particular set of means necessary for its execution, including knowledge, corporeal skill and, often, external tool(s). It follows that a technology cannot be reduced to any of these. In addition, a technology is usually thought of as something that has a cultural basis, i.e., as a pattern of activity or practice that results from innovation and which is transmitted among the members of a social group and, frequently in humans, across groups. Unlike forms of purposive activity that all members of a species are disposed towards biologically (such as “walking”, “swimming” or “flying”), technologies are in general shared by only some of its members.

Though incredibly variable across human societies, technologies constitute a central part of all human lives – and have done so for tens of thousands of years. Clearly, by the definition just given, technologies are developed and used by many other species than humans. Chimpanzees in Central Africa puncture termite mounds with large sticks and then switch to lighter, modified sticks or straws to fish out the insects, New Caledonian crows extract grubs from logs using points and hooks constructed from plant material, and Western Australian bottlenose dolphins use marine sponges for churning up the sea bed to dislodge burrowing fish. Such classic examples are frequently rehearsed, but they are increasingly beginning to look like the tip of a technological iceberg in non-human biology (Ramsey et al., 2007; Bentley-Condit and Smith, 2010). Nonetheless, while new empirical results continue to expand the