in a person that closely interacts with an environment. All things considered, they argue, thoughts remain in persons—never in objects like notebooks, however closely dependent a person could become on them.

Enthusiasts for the extended mind thesis insist that a close causal coupling between persons and environments can license the conclusion that the mind spreads into the environment. Some follow the argument in Clark and Chalmers that infers extendedness from the fact that external elements can play a role that would be considered as cognitive if played by something internal to a person.

Other supporters of the idea are suspicious of this argument from parity. They note that the most interesting cases of causal coupling are those in which the environment does not simply function as some ersatz internal milieu—when the involvement of external means makes possible forms of cognition that were not possible without them. For example, when pen and paper, symbolic systems, or computers make possible calculations, computations, and, ultimately, scientific theories. Those taking this position hold that it is when the environment becomes a necessary factor in enabling novel cognitive processes that the mind extends.

In *The Extended Mind*, philosopher Richard Menary (University of Wollongong) brings together the Clark and Chalmers paper and several responses to it. The collection, lucidly introduced by Menary, will neither definitively prove nor deal the deathblow to the idea that "the place of the mind" is the world—nor even establish that there really is such a question about "the place of the mind" that needs to be answered. Rather, the volume provides carefully drawn arguments for and against different interpretations of the extended mind thesis, often with extensive reference to empirical material. Several of the papers in the collection are excellent.

To take one fascinating idea, consider Susan Hurley on "variable neural correlates." We are comfortable with the correlation between types of experience and types of brain states, and undoubtedly such variation is one important source for the idea that the mind is in the head. Hurley notes, however, that there is also a dependence of experience on type of interaction with the environment, one not aligned to strictly neural properties. For example, when blind people haptically read Braille text, activity in the visual cortex seems to correlate with tactile experience. In people who are not blind, tactile experience correlates with activity in the tactile cortex. What explains the common enabling of tactile experience by the different kinds of cortex seems to be tactile causal coupling with the environment, rather than strictly neural type. According to Hurley, and others, the same kind of correlation-tracking reasoning that convinces us, in standard cases, that the mind is in the brain should here lead to the conclusion that the mind is not in the head.

References

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EXHIBITION

Six-Legged Fun

Insectos em Ordem [Insects in Order]
Patrícia Garcia Pereira and Eva Monteiro, Curators
National Museum of Natural History and Centre for Environmental Biology, University of Lisbon. At the Old Riding School of the College of Nobles, the Polytechnical Museums. Through 28 November 2010. http://bioeventos2010.ul.pt/bioevento/expo_insectosemordem.html

Insects, the most diverse class of organisms on Earth, have a profound impact on our lives. We recognize the value of many—bees, for example, pollinate flowers and crops and provide us with food. Many other insects, however, are considered (deservedly or not) pests to be repelled or destroyed. To dispel myths, Lisbon's National Museum of Natural History invites visitors to explore the diversity and characteristics of Portuguese insects. One of the celebrations of the International Year of Biodiversity, the exhibition "Insects in Order" sets an irresistible challenge for children and adults alike: to become an entomologist for an hour by identifying insects according to their taxonomic order.

At the entrance, visitors are given an insect preserved in a resin block. The specimen may be any one of more than 100 species (from 16 orders). Insects, which represent more than half the known species of extant organisms, are hexapod (six-legged) arthropods. The class is divided into about 30 different orders. For example, beetles, the most diverse group of insects, are classified as Coleoptera. They have two pairs of wings. Their forewings are hardened and used not for flight but for abdominal protection—hence the order's name, which means sheathed wing. In contrast, adults of the order Neuroptera (which includes lacewings, mantidflies, owlflies, and antlions) have two pairs of membranous wings with a fine network of veins.

Neuropteran from Portugal. The striking thread-winged lacewing (*Nemoptera bipennis*).

To begin to classify their specimen, visitors must first carefully examine it and determine whether it has "delicate and membranous forewings with clearly visible veins" or "strong and hard forewings with no visible veins." Their choice leads them to enter the main exhibition room through one of two doors. The layout of that large room, organized as a labyrinth, sets the task ahead. Visitors proceed along a series of benches (each with an embedded magnifying glass), where they are challenged to closely look at some aspect of the specimen and pick one of a pair of answers to particular questions: Does the insect have a pair of wings or two? Are there pincers at the end of the abdomen or not? Etc. Each answer guides one to the next bench, via a trail marked on the floor. The choices are not always clear-cut, but with persistence, some practice, and occasionally trial and error, visitors should be able to correctly classify their insect and arrive at an illustrated panel that offers a description of its order.

Without becoming overtly explicit, the exhibition leads visitors through the dichotomous key method traditionally used by scientists to identify organisms. The experience transmits the enjoyment and excitement of discovery in science. And it is fun to identify insects. I, for one, could not stop after one specimen and repeated the process again another four times. What are you waiting for?

–Maria Cruz

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