

Book review: *Built by Animals*

# Room for Improvement

While posing countless interesting and profound questions about the technical skills of animals, the author, an emeritus professor of animal architecture, unfortunately fails to answer them.

Imagine the perfect workplace. Each employee is busy and constantly looking for new tasks. Everyone knows what to do and works unsupervised. Nobody lazes around, skives off or demands holidays. Optimum effectiveness all round. No discussion, no complaints, no unions. In short, a paradise for bosses and a nightmare for those employed.

In fact, just such a self-organised workplace paradise exists. It's called Termite Ltd. Several hundred to several million individual termites – nymphs, workers, soldiers and egg-laying queens – live there with no centralized control structure, acting as if they were a single animal. Insect researchers call this collective behaviour “swarm intelligence”.

Termites are workaholics, permanently looking for their next source of drudgery. Although single Isoptera individuals aren't very clever, they always know what to do if they meet stimuli, which triggers signals to act. The trigger could be anything: a hole in the nest wall, an enemy attack or the level of a specific body hormone. And small though these eusocial insects are, their answers to any stimulus are incredibly elaborate.

*Built by Animals* explores the apparent discrepancy between the small brains of certain animals and their ingenious architectural capabilities. In addition, the author asks whether animals have a sense of beauty – and promises (but not always provides) answers within the context of evolution.

This book about animal achievements starts with an archaeological site that was built by man. Dun Aengus (in Irish *Dún Aonghasa*), a prehistoric fort located on the

western coast of Ireland, served in the Iron age as a defensive outpost. A quick shift to the defence strategy of the silkmoth's (*Bombyx mori*) caterpillar follows. This domesticated insect builds several lines of defence by plucking out its long hair and arranging it around tree trunks – a useful protection against ants and other attackers while the caterpillar spins its cocoons between the protective rings.

Throughout the text, we learn how to plan an experiment to answer the question of how an animal makes decisions about what to build. Will the female giant golden digger wasp (*Sphex ichneumoneus*) choose the usual length of a burrow angled into the ground, even if, during her temporary absence for feeding, the digging work was continued by the observer? Or will she dig a burrow after her return which is longer than usual? A biologist is sure to guess the answer whilst the non-specialist gets the opportunity to conquer the train of thoughts of a behavioural scientist. (Anxious to hear the experiment's result? Well, the burrow will be of normal length).

## Well versed author

The author should be well versed in this topic; he is a biologist. Since his doctoral thesis, Mike Hansell, an emeritus professor of animal architecture at the University of Glasgow, has worked on how animals build their houses, mounds, nests, cases and webs. On his former institute's website, Hansell describes himself as follows,

*“Any creature [...] builds anything, and I want to know the nature of the built struc-*



A great golden digger wasp (*Sphex ichneumoneus*) making its nest in the ground.

*ture and how the animal builds it [...] to obtain a better understanding of the evolution of animal building behaviour, its ecological consequences and the complexity or simplicity of the behaviour itself.”*

Hansell delivers internal views of the social organisation of termite colonies and other animal builders. Most *Lab Times* readers probably already know that pheromones play a key role in transmitting “terminal” orders such as where exactly to place building materials or similar tasks. If not, they learn this and other facts from Hansell.

## Making the reader stumble

Sometimes, the former professor makes the reader stumble with statements such as, “You don't need brains to be a builder”. Later Hansell adds that we should never underestimate the capacity of animals simpler than ourselves to come up with effective yet simple alternatives to our own.

In sum, this scientific-sounding book was written by an expert of animal architecture and the reader may notice it on some level. However, though Hansell might have intended to write about his scientific field for non-specialists in a comprehensible manner, he did this in an uninspiring way. Far more disappointing is the artwork: there are a few dull and featureless pictures between many, many pages. I'm sorry to say that Hansell failed to compose an absorbing book on an exciting topic.

SIMON WARNER

Mike Hansell: *Built by Animals. The natural history of animal architecture.* OUP, 2007. 268 pages, €24.--.