analysis from the most basic molecular and cellular aspects of neurobiology to applied research and human clinical studies. The unifying factor in this multidisciplinary approach is the common theme of understanding the principles of learning, crossing the conventional barriers that have separated cellular and molecular neurobiology on the one hand from cognitive and behavioural science on the other.

This is a challenging mission, and I admit that I opened the first issues with scepticism. The format is fairly standard for a journal of this type: 4–6 research reports per issue, with a smattering of reviews and so far one technical note. Presumably, if a successful flow of manuscripts is established, the thickness of the individual issues will expand. The quality of printing and reproduction is modern, crisp and clear.

So far, so good, but not enough to justify yet another new journal. The impressive feature of the first issues, however, is the editors' success in attracting an outstanding selection of manuscripts across the full range of disciplines encompassed by the journal. Not only are these initial reports of a consistently high experimental quality, but the authors have been successfully encouraged to write with a clarity and style that should make the journal readily accessible to its intended multidisciplinary readership.

The label 'technical note' is deceptive, as the article in question turns out to be a full-length methods paper that provides the detailed rationale, technical description and results of using a computer-controlled, removable on-demand escape platform as an innovative modification of the Morris water maze. The modification offers a powerful way to resolve learning and motivational factors in the performance of animals in the task. Such technical developments often pave the way to important theoretical advances, and I hope that the editors will continue to solicit further technical notes of this standard.

The success of the journal in attracting a broad and sophisticated range of articles is no doubt a reflection of the large board of editors of international calibre and repute. Not surprisingly, many of the articles in the early issues come from members of the board.

If the editors can elicit a flow of similar excellent work from the wider readership, maintaining the breadth of coverage and a stringent review programme to sustain the quality, then *Learning and Memory* could become the journal of choice for articles in the field. ☐

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Engineering the oceans

Brian McCartney

Journal of Marine Environmental Engineering. Editor-in-chief Michael S. Bruno. *Gordon and Breach. 4/yr. ECU83, $90.*

MARINE scientists are well aware of the myriad applications and roles of the ocean, ranging from a resource of food, energy and unique organisms to a source of coastal floods, a medium for bulk transport, a reshaper of coastlines, a depository of waste, a sink for pollution and a mediator of climate. Reaping of the ocean's benefits, protection from its dangers and avoidance of adverse long-term effects of

IMAGE
UNAVAILABLE
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REASONS

Water-resistant: Thames flood barrier in London.

its exploitation require knowledge of marine science, and especially marine environmental engineering, a discipline that often differs greatly from land environmental engineering. *Journal of Marine Environmental Engineering* aims to provide a forum for this interdisciplinary field. It unashamedly caters for the applied papers "that describe the use of science and engineering as a *tool* in the solution of present and future marine environmental problems".

The interdisciplinary intent is exemplified by two papers in the first volume that deal with the problem of global transport of unwanted microbiological organisms through the ballast water of ships. Chemical and physical methods of killing toxic dinoflagellate cysts are considered, the most effective way turning out to be heat treatment: a heat exchanger, possibly from the engine-cooling circuit, could be used to treat the ballast water as it is loaded. The other paper studies the microplankton in a ship's ballast water, and concludes from an

analysis of stresses in the ship's structure that mid-ocean cycle of deballasting–reballasting is not a safe option, but that continuous flushing is. It is possible that journals of neither marine microbiology nor marine architecture would be comfortable with these cross-disciplinary papers, and so *Journal of Marine Environmental Engineering* fulfils a real need.

Five papers address aspects of numerical modelling applied to coastal transport processes, to oil spills in Arctic waters, to the plume of a sludge discharge and to the use of a shell approach, including GIS (geographical information system) and visualization tools to aid environmental management, especially of coastal zones. These papers all concentrate more on applications than on the kind of mathematics and theory generally found in journals of fluid dynamics and numerical methods.

Papers on engineered devices include accounts of a water blade to remove surface oil and a wave-driven artificial upwelling system. A review of more than 20 years of US research into ocean thermal-energy conversion concludes that, using off-the-shelf technology, an operating plant could be built as an environmentally sound alternative to fossil fuel. As a by-product, the deep ocean water brought up for the heat cycle could be used for other purposes such as aquaculture, air conditioning and refrigeration.

Optical and acoustic sensing of suspended and ponded sediments are described in several papers with relevance to water quality and disposal practices. Future possible ocean monitoring of planetary waves on basin-wide scales using acoustic tomography is also considered in one paper, and the costs and benefits of detection of climate change are addressed in another. These papers were invited by the editors to stimulate discussion. Such short communications to this debating forum are published at the first opportunity after editorial review. All other papers are peer reviewed and the quality of the content is high, although there is some evidence of inadequate proof reading. The journal's format is A5, with good-quality colour plates bound in at the back of each issue; this is not as inconvenient as it seems, because the figures are also reproduced as halftones next to the text of the papers themselves. Model results in particular benefit from the use of colour.

Journal of Marine Environmental Engineering serves a valuable purpose in providing academic engineers with a publishing outlet for marine papers. Because these cover such a wide spectrum of applications, however, it is difficult to say whether the journal will find a dedicated readership in the various marine industries.

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