

## Abstractions



### BOOK REVIEW AUTHOR

Fictional portrayals of scientists conducting cutting-edge research are rarely found on book shop shelves. On page 128, Jennifer Rohn, a cell biologist at University

College London and editor of an online forum called LabLit.com dedicated to the genre, reviews three recent novels that feature scientists as protagonists. She spoke to *Nature* about her efforts to improve scientists' fictional standing.

### What is LabLit.com and why did you start it?

While doing my PhD, I read a novel about laboratory scientists and was bothered that I couldn't easily find other books like it. You can read fiction about everything else, but scientific research as a topic is rare. Yet science is rife with discovery, competition, jealousy, passion and life-threatening diseases — all makings of a good story. In 2005, I started LabLit.com to generate interest in fictionalized science by shedding light on scientists in their natural habitat.

### What does a good work of lab lit need to offer?

Any work of fiction must be a great story with great characters. But I do love it when an author is also able to go into detail about science in an unobtrusive way.

### Was it a challenge to review three books?

The challenge was finding a common theme. Two of the books focus on nature — often the subject in instances where science does feature in literature. *A Version of the Truth* by Jennifer Kaufman and Karen Mack is a chick-lit book set in a university animal behaviour department; *The Expeditions* by Karl Lagemma follows a naturalist expedition of the American west in the nineteenth century.

### Do you think publishers are prejudiced against publishing fiction about science?

Yes. Most publishers balk at the idea of publishing a fictional book about science. For example, the book I reviewed with the most scientific detail — *The Gift* by Jon Kalb, which delves into the ruthless world of hominid fossil hunting — was not traditionally published. It is available print-on-demand by the author. I think for this genre there is considerable opportunity for print-on-demand.

### What are some lab lit classics?

*Cantor's Dilemma* by Carl Djerassi, inventor of the contraceptive pill, which is about a Nobel winner falsifying data. And *As She Climbed Across the Table* by Jonathan Lethem, which I think could entertain even the biggest sciencephobe. It's about a physicist who discovers a black hole and falls in love with it, and offers a good sense of how scientists can obsess about their topics. ■

## MAKING THE PAPER

Steve Larter

### Microbes could provide cleaner energy from Earth's oil reserves.

Geochemist Steve Larter and his colleagues may have found a way to drive energy production from the world's diminishing oil supplies that minimizes damage to the environment. And the process might even be agreeable to the oil industry.

Humans are not the only organisms reliant on Earth's oil supplies. Bacteria found in oil reservoirs both at Earth's surface and below it degrade oil, turning it into a viscous substance that makes recovery and refining more costly and difficult.

Geologists have long known about these oil-degrading microorganisms, but how they go about their business in subsurface oil reservoirs has been a matter of debate. Several studies suggested that oil in these reservoirs is degraded by oxygen-dependent 'aerobic' bacteria using oxygen in meteoric groundwater. But degraded oil has also been found in places with no direct access to oxygen-rich surface water.

Under an oil-industry-funded project called 'Bacchus' (<http://tinyurl.com/2ebq7y>), Larter, of the University of Calgary in Canada, and his colleagues discovered that anaerobic microorganisms can degrade oil hydrocarbons by fermentation, producing methane as a byproduct.

These organisms react water with hydrocarbons in the oil to produce acetic acid, hydrogen and carbon dioxide; they then combine the H<sub>2</sub> and CO<sub>2</sub> to form methane. "It's literally oil plus water equals life and a little gas," says Larter.

Larter says the work was inspired by a 1999 *Nature* paper (K. Zengler *et al.* *Nature* **401**, 266–269; 1999). On the basis of results from lab experiments, Zengler and his colleagues had proposed a mechanism for near-surface hydrocarbon degradation by anaerobic microbes.

"Their basic mechanism was broadly correct,



but was subtly wrong for subsurface oil reservoirs," says Larter. His team used a combination of microbiological studies, laboratory oil-degradation experiments and case studies from the oilfields of the North Sea, South America, China and western Canada. The western Canadian fields are home to one of the world's largest accumulations of biodegraded oil (see page 176).

At present, the oil industry could use this knowledge of how biodegradation works to predict and target where the less-biodegraded oil is located within reserves. Taking oil from these areas would decrease the use of energy-costly recovery processes, such as steam-assisted gravity drainage, which uses steam to melt oil from reservoir rocks.

But in future, the work of Larter's team could dramatically change the energy-recovery process. The methane produced by the oil-degrading microorganisms provides the same amount of energy as oil, but emits less CO<sub>2</sub> when burned. And the intermediate H<sub>2</sub> — described by Larter as "the holy grail" of alternative energy because it is hard to produce cheaply, but carries no carbon signature — could also be used as fuel.

"If the process could be accelerated and methane or H<sub>2</sub> recovered from oilfields at economic rates, this could be a way for the oil industry to keep doing what it's doing, but move easily and quickly to lower carbon emission energy-recovery routes," he says. Although he admits that at the moment this "seems like a very long shot".

With these prospects still far off, Larter is doing his best to reduce his own carbon footprint. He walks to work and uses public transport. "I wear out lots of boots," he says. ■

## FROM THE BLOGOSPHERE

One of the new blogs on the block at Nature Network is 'Stripped Science' (<http://network.nature.com/blogs/user/strippedscience>), in which Viktor Poór posts short comic strips about lab life. Viktor is a PhD student working on a peptide called hepcidin that is important in iron metabolism.

Working in the lab can be quite boring — repeating the same steps of pipetting or

centrifugation all day long — and Viktor wonders what lab life might be like from a bacteria's point of view. He also has some amusing fantasies about fighting boredom in the microscope room. In another strip, he shows how cell-culture contamination can be turned from a frustration into a pastime, and in another, he offers biologists some tips about the best way to spend their time

at conferences — and it isn't listening to the presentations, networking or sightseeing.

Stripped Science brings smiles of recognition to Nature Network users, including, no doubt, any bacteria among them. Viktor welcomes comments and suggestions, which you can make online at the blog, now posting at a regular frequency of twice a week. ■

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