

Life, the Universe and everything

Magic Universe: The Oxford Guide to Modern Science

by Nigel Calder

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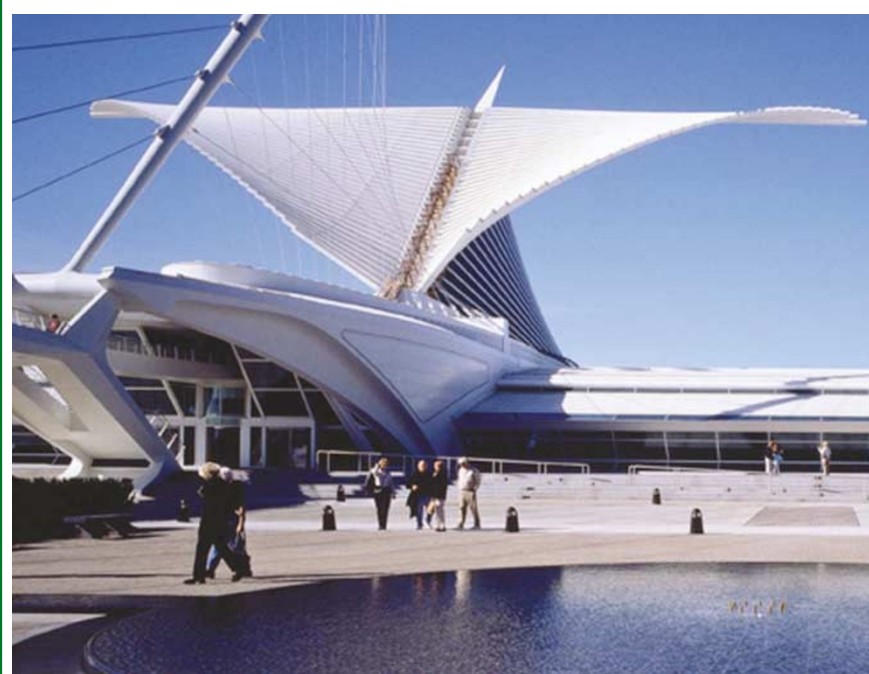
Nigel Calder is a journalist of great skill and experience, and his craft is evident in this collection of essays about a broad range of scientific topics. The essays, 120 in all, are deft vignettes that lay out the principal scientific issues in a field, portray the leading players, and sketch the recent development of the subject. Each essay is cross-referenced to others, loosely interweaving the main themes of the book: physics, biology and cosmology. It is this interconnectedness, the author explains, that gives the Universe the magic referred to in the book's title.

The entries in this guide to modern science are arranged alphabetically, essentially randomizing the subject matter. Turning to the entry on the human genome, I was impressed at the author's ability to compress many different kinds of information into a readable and insightful narrative. Much British coverage of the race to sequence the genome has tended to portray Craig Venter as an American profiteer, slapping patents on the genome against the principled opposition of Britain's John Sulston, who insisted that everything be in the public domain.

Calder has picked up on the fact that the ideology concealed a more personal issue. Venter, an academic at heart, was forced to seek private funding after being denied adequate support by the US National Institutes of Health. It is an irony, too deep to explore here, that the Sanger Centre near Cambridge, UK, where Sulston was based, was able to do its pioneering work on the nematode and human genomes only because its patron, the Wellcome Trust, reaped a windfall, under the wicked patent system, from the profits accrued by Burroughs Wellcome on the sale of drugs such as AZT.

Calder also notes that it was only after being denied support from the National Institutes of Health that Kari Stefansson set up deCODE Genetics in Iceland to search for haplotypes associated with common diseases. That two scientists of such abundant talent and drive as Venter and Stefansson should be obliged to work outside the official funding system could be a matter of serious discomfort to those persuaded of the general merit of allocating funds by peer review.

But the book's format of an A-to-Z guide proves rather restrictive. In attempting to cover both the genome-sequencing efforts and deCODE Genetics' search for haplotypes



Exhibition

Building on nature

Organic architecture was espoused by Frank Lloyd Wright as long ago as 1908, and there were stray examples of natural influences on buildings before that. Joseph Paxton's design for the Crystal Palace, for example, which was built in London in 1851, was inspired by the ribs of the giant *Victoria regia* lily, and the splayed base of the Eiffel Tower in Paris copies the buttress principle of large tree trunks. But the great flowering of organically inspired architecture is happening now.

Hugh Aldersey-Williams has brought together models, sketches and photographs of buildings — displayed alongside stuffed examples of the animals that inspired them, borrowed from the neighbouring Natural History Museum — in a new exhibition at London's Victoria and Albert Museum.

Sometimes the inspiration is iconic. The image used in publicity for the exhibition is

Santiago Calatrava's Milwaukee Art Museum (shown above), which mimics a giant bird (or, to some eyes, the tail of a humpback whale). Sometimes the inspiration is structural. David Marks and Julia Barfield's competition-winning design for a cafe in the redeveloped Bullring shopping centre in Birmingham, UK, is based on a nautilus shell and the Fibonacci series, the mathematical justification for the ancient golden section, or ideal sensual proportion.

Architectural firms whose work is included in the exhibition include Foster and Partners, Gehry Partners, Nicholas Grimshaw and Partners, Renzo Piano Building Workshop, Ushida Findlay and Wilkinson Eyre. Some of the entrancing hybrid structures showcased in the exhibition are as yet unbuilt — the exhibition should encourage this situation to change.

Peter Forbes
The Zoomorphic exhibition runs at the Victoria and Albert Museum, London, until 4 January 2004.

in this single entry, Calder ends up giving no detailed picture of either.

An entry on 'prehistoric genes' turns out to be an account of the dispersal of the human population from its ancestral African homeland. I felt that this essay did not do complete justice to its material and seemed less up-to-date than the genome entry.

The essay on 'life's origin' discusses comets and the RNA world, but not the theory recently proposed by Günter Wächtershäuser. He believes that the beginning of life should be sought not in the cell or in nucleic acids, but in a natural metabolic cycle that perpetuated itself and then somehow managed to escape from its surface catalyst. In the past few years, Wächtershäuser has demonstrated

that several necessary elements of such a cycle are possible. The piece on 'nuclear weapons' shows Calder at his best: a lot of history, physics and sensible political judgement is packed unobtrusively into a breezy account of the bomb-makers and their foibles.

The book has no diagrams, which is perhaps a pity, because a great deal of scientific information can be conveyed in a graphic.

Magic Universe is a collection of generally enticing appetizers. It may be most useful for general readers, for whom it surveys many of the more interesting fields in contemporary science, leaving the reader to decide which to explore elsewhere in further depth. ■

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