

acids. The molecular foundation of evolution became clear when DNA's structure and function were established by Francis Crick and James Watson in the 1950s and 1960s. Finally, we know how to encapsulate all those reactions in lipid compartments that mimic cell membranes, and several pioneering laboratories are taking the first steps towards fabricating microscopic systems of molecules that display the fundamental properties of life.

Harold writes about these topics, so it seems that we have made considerable progress after all. If we use a jigsaw puzzle as a metaphor, more than 80 years ago we opened the box and found hundreds of loose pieces; today, some of them have been correctly placed around the edges of the puzzle. We still cannot see the picture in the centre, but I am satisfied that we have the framework.

Thousands of young biologists work mostly on the narrowly defined problems that are the crux of successful grantsmanship. Harold's book is like a balloon that will let them rise above the trees for a while and look down to better understand the scope and shape of the forest — and perhaps then descend to pluck some low-hanging



A depiction of an animal cell.

fruit. Senior scientists like myself will take pleasure in comparing perspectives with Harold's. This is, after all, a story to conjure with — that of how life began and evolved into eukaryotic cells, a hundred trillion of which compose the human body. No one can yet tell this story in its entirety, but Harold's book is a good place to start. ■

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## Books in brief



### Life's Blueprint: The Science and Art of Embryo Creation

Benny Shilo YALE UNIVERSITY PRESS (2014)

The extraordinary 'shape-shifting' of the developing embryo marks embryology as one of the most visually arresting studies in science. Fittingly, evocative images pack geneticist and photographer Benny Shilo's concise tour of the field's evolution over the past 30 years. Shilo juxtaposes scientific photographs with his own stunning shots, chosen to elucidate the findings metaphorically. So a spiral staircase and its shadow against the sunlit side of a building echo the complementarity of DNA structure, while a relief carving in stone illustrates how cells are selectively killed to shape digits.



### How We Got to Now: Six Innovations that Made the Modern World

Steven Johnson RIVERHEAD (2014)

In this nimble history of invention, science writer Steven Johnson reframes ubiquity by focusing on six unglamorous innovations that triggered vast social transformation — from water purification to electric lighting. He uses a "long zoom" approach to history, tracing change on scales from the atomic to the planetary, to reveal how the impacts of innovation can be unexpected, for good or ill. From the sanitation engineering that literally raised nineteenth-century Chicago to the 23 men who partially invented the light bulb before Thomas Edison, this is a many-layered delight.



### Dr. Mutter's Marvels: A True Tale of Intrigue and Innovation at the Dawn of Modern Medicine

Cristin O'Keefe Aptowicz GOTHAM (2014)

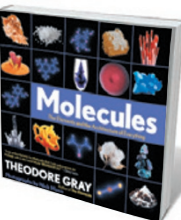
Fused skeletons, grossly enlarged colons and other pathological curiosities crowd the Mütter Museum in Philadelphia, Pennsylvania. But it is the collector — nineteenth-century surgeon Thomas Mütter — who stars in this beautifully detailed biography by writer Cristin O'Keefe Aptowicz. Mütter started out as a foppish medical student in Paris, but ended a hero tending to the injured poor of Chicago. What emerges here is a dual portrait of the driven doctor and a medical field transformed by scientific, if sometimes eccentric, pioneers.



### Claxton: Field Notes from a Small Planet

Mark Cocker JONATHAN CAPE (2014)

Naturalist Mark Cocker last astonished us with a global survey of avian and human interaction, *Birds and People* (Jonathan Cape, 2013; see *Nature* 500, 25; 2013). Now he homes in on the local for this lovingly edited assemblage of 140 previously published pieces chronicling a 'year in the (wild) life' of Claxton in East Anglia, UK. Cocker is a quietly eloquent guide to this landscape teeming with species from mouse moth to wych elm — describing, for instance, how wigeons "peel off the water as a continuous blanket that instantly atomises and falls back to earth amid a downpour of contact notes".



### Molecules: The Elements and the Architecture of Everything

Theodore Gray BLACK DOG AND LEVENTHAL (2014)

This big, lush chemical romance of a coffee-table book showcases photographs of compounds and materials as if they were Bulgari jewels on black velvet. Theodore Gray, whose 2009 book and app *The Elements* (Black Dog and Leventhal) remains a huge best-seller, here canters through atomic and molecular structure and bonds; organic and inorganic chemicals; and materials. Gray's wit and scientific nous blaze as he unpacks the mechanics of soap, the sulphur compounds in essence of skunk and more. [Barbara Kiser](#)