The Barker Library at the Massachusetts Institute of Technology in Cambridge, seen in the 1930s. Changing habits are affecting publishers.

BOOK PUBLISHING

University presses adapt

Roger Schonfeld analyses how the sector's scientific books are faring in the digitized, open-access era.

University presses, those venerated producers of books (and journals), face pressures as never before. Digital access and changing acquisition patterns at libraries have disrupted the presses' traditional businesses, and they are meeting the challenges in different ways. Some are experimenting, some seeking shelter by joining with their academic libraries, and some maintaining impressive resilience. Others struggle to survive. Meanwhile, some presses retain healthy print-driven scientific books businesses, and are content to maintain them — as long as print books thrive.

The presses of the UK universities of Cambridge and Oxford, established in the sixteenth century, are respectively the world's oldest and largest university publishing houses. The dozens of US members of the Association of American University Presses are comparatively young — Johns

Hopkins University Press in Baltimore, Maryland, is 138 years old and the MIT Press in Cambridge, Massachusetts, 84. But their immense reputations are no guarantee against upset. Recent years have brought reorganization and lay-offs at Cambridge and Oxford, and several US institutions (including the University of Missouri in Columbia) have tried to shut their presses.

In the face of disruptions to and consolidation of scientific publishing in recent decades, some presses have carved out an important space in scientific book publishing. They have fostered key lists and promising authors in the natural and social sciences for a focused but not exclusively academic audience — unlike the big commercial publishers of popular science books, such as Penguin Random House in New York City, which concentrate on the mass market. And books remain among the most important

translational tools for science. They bring a scholarly examination to a public eager to know more about 'hot-button' research areas such as climate change, the potential of exoplanets, socio-economic inequality, artificial intelligence and genetics.

Academic book publishing rests on three pillars: the traditional formats of textbooks, monographs and general-interest titles. The latter are aimed at natural and social scientists in other fields, graduate students and lay readers. All are undergoing change.

With their high production values, prices and profits, undergraduate textbooks are still big business for firms such as Pearson in Cambridge, UK. For more than a decade, many have been more than just a book: they include access to online environments offering instructor notes, quizzes, tests and more. As publishers add multimedia access, interactive instructional modules and

MIT MUSEUM

▶ other bolt-ons, this demands a new level of capital investment.

Universities and funders are mounting renewed efforts to compete with these businesses through open educational resources such as Open SUNY Textbooks at the State University of New York. Increasingly, textbooks follow a different trajectory from monographs and trade titles; their future is tied up with the delivery of digital instruction.

Meanwhile, monographs — relatively brief, expensive, sparsely edited and simply designed formats for original research — are aimed mainly at small peer readerships, often to enhance the author's chances of tenure or promotion. For stand-alone titles, sales (targeted almost exclusively at institutions) rarely exceed 500 and have declined as cash-strapped libraries shift resources. So scientific monographs are increasingly sold in series, such as the Princeton Series in Modern Observational Astronomy at Princeton University Press in New Jersey, or in partnership with a learned society — Cambridge University Press's Econometric Society Monographs, for example. The 'series' strategy enhances specific fields of strength; by putting 'more wood behind fewer arrows', the presses can leverage editorial expertise, author lists and reviewer relationships.

The third pillar — the general-interest, or academic trade book — is a case apart. These are "written with ambition to impress a wider readership beyond the tenure committee", explains Chris Harrison, publishing director at Cambridge University Press. Their authors, he adds, may be researchers "frustrated by the limits of the journal article as a format for communication who now want to join the dots and tell a bigger story".

These books translate a concept, idea or methodology and open up the scholarly literature. Notes Amy Brand, director of MIT Press: "There is a sweet spot for academic publishers in the trade space — capturing and valuing the complexity of the work yet not having to write for an eight-year-old, respecting the intelligence of the general reader."

TRADING PLACES

Some publishers may view these as works for the generalist, but Peter Dougherty, director of Princeton University Press, sees a more specific objective. "We are trying to reach a broad cross-section of scholars, beginning with those in the author's own field and moving into contiguous fields." These would once have been published by trade houses, but as commercial publishers have focused on higher-selling titles, academic trade books have become an opportunity for university presses. A small group of presses, including Cambridge and Princeton, have developed a substantial business in these books, but they can demand a lot from the publisher.

The authors with the most well-honed

Publishers strive for a share of the market at the London Book Fair.

concepts often compete for five-figure advances — unaffordable for smaller presses. Substantial developmental editing, to frame them accessibly without sacrificing their scholarly underpinnings, is often offered. Publicists work with the news media as well as science journals: publishers hope "for reviews not only in *The Times Literary Supplement*, but also in the broadsheets", says Sophie Goldsworthy, Oxford University Press's editorial director for academic and

"Almost everything we publish gets pirated. In one sense, everything is open-access."

trade books. These books are generally expected to sell anywhere from 1,500 to 5,000 copies, with the exceptional case — such as economist Thomas Piketty's *Capital in the Twenty-First Century* (Belknap/Harvard, 2014) — selling in the millions. E-books have yet to match print books in revenue or unit volume.

Broad changes may shift the traditional publishing structure. University presses and other academic publishing houses have long managed separate businesses for books and journals. Now, in a move towards flexibility in formats, several, including the University of California Press in Oakland, California, are strengthening connections to build an overall publishing strategy — or merging these departments completely. Cambridge delivers its journals and books through a single website, enabling readers of one format to discover products in the other and allowing innovation at a product level.

But such radical change in production and distribution is not easy for academic houses. Elsevier and the other large commercial scientific-monograph publishers succeed because size offers considerable cost savings

as they streamline production and distribution. Such publishers have also established a business model increasingly decoupled from sales for an individual book. Starting with Springer (now Springer Nature, owners of this journal) a decade ago, they moved to a bundled-subscription model for academic libraries. Readers like this model because large quantities of books are available in usable formats such as PDFs, rather than restricted digital-rights-management formats. Publishers like it too, because it eases sales to libraries.

TRANSITION AND TRADE-OFF

All academic publishers have begun to make their books available for digital sale, both through Amazon's Kindle platform and to academic libraries. Smaller presses are more likely to sell to libraries through third-party aggregators such as EBSCO, Project MUSE, ProQuest and JSTOR (I work for Ithaka S+R, whose parent firm operates JSTOR). Several use platforms based on technology from HighWire, Silverchair and Atypon (acquired this year by publisher Wiley of Hoboken, New Jersey).

Others have taken steps to develop or operate their own platforms, supplementing or supplanting these other approaches. It is a way of being "a little more self-directed", as Brand puts it, and enables greater product differentiation and format innovation.

Some efforts to develop new formats are under way. Cambridge has introduced concise, updatable treatments called Elements. The University of California Press has debuted Luminos, an open-access publication programme that allows options for multimedia, live links and annotation to be added to its digital versions. And platforms such as Project MUSE are planning to reach back to authors to experiment with even greater format flexibility.

Common themes emerge when academic publishers talk of pressures and opportunities. As Brand notes, digitized content is ever-harder to control. “Almost everything we publish gets pirated one way or another. In one sense, everything is open-access,” she says. Some publishers are fighting this with lawsuits and authentication technology, but others embrace open access. In addition to open-access monograph models available through Luminos, MUSE and JSTOR, a handful of open-access presses have launched in the past five years, including Amherst College Press in Massachusetts and UCL Press in London. Third-party efforts such as Knowledge Unlatched in Berlin syndicate open access across a group of subscribing libraries.

Of greater concern are ‘evidence-based acquisition’ models. In these, a researcher identifies a desired book; only at the point of initial access is some fee charged to the library. Sales cannot be taken for granted and “every book really needs to sing for its supper now”, says Goldsworthy, emphasizing that Oxford University Press does not make publishing decisions on the basis of anticipated return for individual titles. Scholarly publishers take comfort that the high quality of their content will provide some immunity against sales declines, but many still express concerns that these models will have an impact over time.

Recent decades have seen a re-sorting of publishers for natural- and social-science books. Some have become expert in building a new business around book publishing, having transitioned from print to digital. They are pursuing subscription-like bundles and open-access models as alternatives to declining library resources for book purchases, and are investing in digital platforms and developing new formats for scholarly communication.

Others are returning to fundamentals. Says Dougherty: “We’re good at taking interesting and important books by scholars and framing and packaging them well for the broader market that we are trying to reach.” With this approach, some university presses have meaningfully advanced public understanding of scholarship while also achieving business success.

But their path ahead is unclear: should reading practices for these materials transition entirely to electronic formats, there will be a substantial reconfiguration as print sales dry up. Over time, issues to do with business models, distribution and scale are likely to emerge as real dilemmas for this small number of presses, and the very important translational books that they publish. ■

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Books in brief

Dangerous Years

David W. Orr YALE UNIVERSITY PRESS (2016)

How will we survive the damaging impacts of our high-throughput, extractive economy? Environmental thinker David Orr delivers a finely pointed analysis, ranging over sociopolitical norms and the ethical consciousness needed to transform them. Transitioning to a “sustainable democracy” will demand that we up the ante in areas such as community engagement, science and governance. The shift must be holistic because we are losing the race with technological advance — and, as he notes, “Everything has changed but our manner of thinking, which remains tribal, insular and myopic.”

Void: The Strange Physics of Nothing

James Owen Weatherall YALE UNIVERSITY PRESS (2016)

This exploration of empty space — “much ado about nothing”, as philosopher of science James Owen Weatherall has it — is a model of concision. On his tour of physics’s ‘greatest hits’, Weatherall begins with Isaac Newton’s vision of space as nothingness extending in all directions. He then moves through the “aetherial substance” of James Clerk Maxwell, Albert Einstein’s general theory of relativity (which posits a rich structure in space-time), quantum theory (which suggests that the vacuum is a state of matter) and string theory (which is riddled with vacuums). An ode to the plenty of nothing.

A Most Improbable Journey: A Big History of Our Planet and Ourselves

Walter Alvarez W. W. NORTON (2016)

It’s likely that a ‘big history’ tracing the evolution of the Universe and all life sits on a bookshelf near you. Geologist Walter Alvarez joins in with this engaging, yet improbably brief, slalom through the science. Alvarez, who co-originated the impact theory of dinosaur extinction, hinges his primer on contingencies — unpredictable formative cosmic or biological events — and original perspectives. So his discussion of cosmic expansion features Milton Humason rather than co-discoverer Edwin Hubble, whereas his passage on Earth’s formation emphasizes how the planet “makes resources useful”.

Dance to the Tune of Life: Biological Relativity

Denis Noble CAMBRIDGE UNIVERSITY PRESS (2016)

In this audacious riposte to neo-Darwinism and the ‘selfish gene’, systems biologist Denis Noble casts life as emerging from biological processes that operate at various scales and levels. Genes, cells, tissues, organs and organ systems ‘dance’ to the tune of the organism-orchestra. From this he derives his principle of biological relativity: that organisms are “multi-level, open stochastic systems” in which behaviour at all levels is causatively complex. Noble’s narrative is sweeping, covering everything from cosmology and Einstein’s theories of relativity to symbiogenesis and epigenetics.

Against Empathy: The Case for Rational Compassion

Paul Bloom ECCO (2016)

Psychologist and seasoned writer Paul Bloom presents a contrarian characterization of empathy — defined as the ability to feel what you believe others feel — as a wolf in sheep’s clothing. Bloom argues that although it may be seen by some as a “magic bullet of morality”, empathy is actually biased and short-sighted, and can corrode relationships and spark violence. He argues instead for a rational compassion decoupled from the intense shared emotionality of empathy. A nuanced foray into some fraught grey areas. [Barbara Kiser](#)