

## In the beginning

Cast your mind back to 1987. The year of the Iran-Contra affair, the last Dusky Seaside Sparrow died making the species officially extinct, hurricane-force winds hit the South of England for the first time since 1703, and Margaret Thatcher was elected for a third term as prime minister. On the plus side, however, the Simpsons made their first appearance, Ronald Reagan challenged President Gorbachev to tear down the Berlin wall, the first ever rugby world cup was played in New Zealand and Australia, and, of course, *Development* was born.

Perhaps 'born' is the wrong word. Go to the *Development* website and you'll find an archive dating back to 1953. But flick between the editorial board PDFs of the last issue of 1986 and the first issue of 1987 and, as in Dr Who, a metamorphosis has taken place: a new Chief Editor, new Associate Editors, and a much heftier Advisory Board including more Americans, plant biologists and molecular geneticists, all stare out from the front pages.

It was these three elements – Americans, plant biology and molecular genetics – that were the driving force of the metamorphosis. As Publications Officer for the British Society for Developmental Biology (BSDB), it had been my job to identify ideas and organisers (who were also the Volume Editors) for the annual series of BSDB Symposia, to help in the recruitment of speakers, and to shepherd their publication [at that time as a supplement volume to *The Journal of Embryology and Experimental Morphology* (*JEEM*) published by The Company of Biologists (CoB)] to a timely conclusion. These symposia were very good, and it quickly became obvious that they contained articles that were often more topical and exciting, and written by a more impressive range of authors, than those in the parent journal. I therefore brought to the BSDB committee the idea of the society starting its own journal. The idea of a society-owned journal wasn't new. '*Development*' (for I had already christened it in my mind) would be to the BSDB what *Developmental Biology* (then the premier journal in the field) was to the Society for Developmental Biology (SDB). The burgeoning data in developmental biology at that time were new, however, and needed a home for their publication.

A brief TV comedy series could be written about the subsequent discussions with publishers, including the CoB. However, the upshot was that I was asked by the CoB if I would like to take over as Editor in Chief of *JEEM*. My response was that I would not, but that I would consider starting a new journal with a broader outlook, more modern style, and aimed at a more international authorship (and readership). The journal would have to lose its quaint quarto page size and its monochrome cover. Colour would be an everyday component, not just an expensive luxury for labs that could afford it. After some discussion, it was decided by the CoB to 'relaunch' *JEEM* as *Development*, a journal with all of these characteristics. This decision was made in 1986, which did not leave a lot of time to generate the changes and produce an actual journal at the beginning of 1987. But fortunately, the world's developmental biologists rallied round by sending in some excellent papers, as did the publishing house under the capable (perhaps 'heroic' is a better term) guidance of Tom Galliers and his staff. Richard Hynes and Doug Melton agreed to come on board as US editors, and we later

recruited Keith Roberts as 'plant' editor. Many others joined the Advisory Board and generously committed their time, as well as some of their best work, to the journal.

One thing that was conspicuously lacking in developmental papers at that time was the intrinsic beauty of developing systems. This was strange because it was precisely what had attracted many of us to become developmental biologists, but also understandable because of the expense of high-resolution colour reproduction. The CoB and its publishing house were very forward looking in agreeing to fund free colour use in the journal (something they had recently instituted at *JEEM*), as well as showcasing the artistic merits of the research contained in its pages as a series of front covers, posters, calendars and postcards, all distributed freely to the world's developmental biologists. Thus, postdocs and graduate students, as well as PIs, saw their work showcased for its beauty as well as its scientific merit. I think this helped *Development* to become part of the developmental biology community, further aided by the provision of low-cost personal subscriptions, enabling most developmental biologists to buy their own copies of the journal, rather than having to go to the library to read it (no internet then, remember!). Another thing that helped was the direct connection between authors and editors. All editorial decisions at *Development* were (and still are) made by working scientists who were themselves authors, and therefore faced the same hurdles over publication as the authors whose manuscripts they were judging.

Perhaps the most compelling reason for working with the CoB was its non-profit nature. Instead of authors having to pay to publish their papers in premier journals, and then pay again to read them, a depressing fashion at the time that mercifully is being eroded by online open-access publishing, the CoB offered in *Development* free colour, no page charges, free reprints, subsidised personal subscriptions, grants to young scientists to attend meetings, and grants to meeting organisers. This non-profit attitude (and the fact that *Development* became popular and its circulation rose rapidly) enabled a rarely seen symbiosis between research and publisher that persists to this day.

It is interesting to look back 25 years to see how each manuscript was handled in *Development's* early years. There was no internet, no email, no cell phones and very few computers (we had one, fanatically guarded, desktop computer in the whole department). Manuscripts arrived by mail: four copies of each typescript accompanied by the figures. These were all original prints mounted on cards, which often fell off in transit and had to be reassembled in our office by careful scrutiny of the figure legends. Reviewers were identified by mail or telephone, and review copies mailed out. Reviewers were encouraged to fax or FedEx back their reports, and destroy the review copy (unless the author wanted all the copies back, which led to more complications). Decision letters were then typed up and went out to the authors. Long correspondences would often ensue. These would sometimes become confusingly out of phase, with airmail letters asking about the fate of a manuscript arriving before the manuscript itself, which was still travelling by sea. We tend to assume that telephone communication was routine in the 1980s. However, most universities in the UK actively discouraged long-distance calls in those days, and editors, authors and reviewers alike would often forget about time zone differences,

or worse still, get them the wrong way round, when calling each other. Despite this process (chaotic by today's standards) in which hundreds of kilos of paper passed in and out of the office every month, the average reviewing time, from arrival to decision, was maintained at around 2-4 weeks, with remarkably few mistakes (although I once managed to send an author his own manuscript to review!). By contrast, in today's *Development* office, the entire reviewing process takes place without anyone needing to see a piece of paper. Equally dramatic have been the changes in the events between acceptance and publication. Photoreproduction, sub-editing, typesetting, printing and distribution together took three months of frenzied activity in the publishing house before accepted manuscripts appeared in the journal. Now, with ePress ahead of print, or no print at all, they are available to the community almost immediately after acceptance.

What were all these burgeoning new data that required a new journal? There were so many! Characterisation of developmentally important genes identified by mutation in *Drosophila* genetic screens was in full swing. Their homologues were being identified in vertebrates, and ES cells (discovered in 1981) were beginning to be used to target such genes to identify their functions; the first mouse knockout was published in 1989. Novel techniques of RNA and protein localisation in embryos were de-mystifying the localised 'plasmids' known to generations of microscopists. cDNA libraries were identifying large numbers of novel genes with different temporal and spatial expression patterns, which could be assayed by northern blotting (and later by RT-PCR) and in situ hybridisation. These seem cumbersome now in an era of whole-exome sequencing of individual organisms and multicolour reporter lines of flies, fish and mice; but they were eye-opening in the 1980s and 1990s. Classical experimental techniques such as single-cell transplantation, organ culture and tissue recombination were being used to elucidate the functions of individual genes in embryonic patterning and growth. New model organisms were being established: witness the famous zebrafish issue of December 1996. And new techniques of cell biology allowed quantitative assays of cell behaviours such as adhesion, locomotion and guidance of morphogenetic movements. Embryonic systems were also being developed as surrogates for other kinds of study: the frog oocyte for analysis of neurotransmitter assembly and function, early embryos of many species for toxicity screens, sequence comparisons in evolutionary biology, electrophysiological assays of membrane

channels, and so on. The increasing sophistication of experimental analysis in a number of model organisms, fuelled by continuing discoveries of novel biochemical and cellular techniques, rapidly increased the pace of our understanding of basic developmental mechanisms.

It also rapidly enhanced the applications of developmental mechanisms to related fields. For example, it drew together developmental biology and paediatrics, leading to the identification of the developmental basis of many of the thousands of birth defects (and, incidentally, to the generation of the Development and Disease section that ran in the journal from 2002 to 2009). The number of developmental biologists also increased significantly. The first meeting of the BSDB that I attended attracted some thirty people, of whom three (including myself) were graduate students. Contrast this with the 700 or so who come to today's symposium meetings. This, in turn, rapidly increased the number of papers, and *Development* was soon overwhelmed with manuscripts. In an attempt to capture all that was new and significant, the journal grew to alarming proportions, before settling down to an increased level of stringency of its acceptance criteria.

In 2002, when I stepped down as *Development's* Editor in Chief, I commented that since its launch in 1987 "*the field has seen the unification of many, if not all, model systems, into a framework that links evolution, development and medicine to an extent that only the most optimistic could have imagined in 1987*". The journal captured much of the essence of this extraordinary sixteen-year period. Long may this continue.

Many people helped with the launch of *Development*, as well as in its remarkable growth. The CoB Board of Directors was highly supportive. The production staff were amazing considering the scale of both the qualitative and quantitative changes with which they were confronted. Many of the world's leading developmental biologists took time out of busy lives to become editors. These included Walter Gehring, Richard Hynes, Tom Jessell, Andy McMahon, Doug Melton, Keith Roberts, Janet Rossant, Gerry Rubin and Ben Scheres. Many more (too many to mention individually) joined the Editorial Advisory Board and enhanced the journal's quality through their manuscript reviews. *Development* was, and remains, a team effort!

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