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► COVER: 'Descenders' by Patrick Morgan



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This month's issue features a focus on evolutionary developmental biology. This field, known as evo–devo, arose 25 years ago from a perceived gap in the Modern Synthesis of genetics and evolution. Evo–devo was borne out of the necessity to understand population processes from a biological perspective, and was made possible by the experimental tools that were offered by the new field of developmental genetics.

By bringing developmental genetics into evolution, we can move beyond understanding how allele frequencies change in response to a changing environment and investigate how specific morphological features emerged and how organisms evolve in response to specific selective pressures. The power of evo–devo stems from its integration of fields as diverse as developmental biology, theoretical biology, palaeontology and molecular genetics, and this multidisciplinary nature is reflected in the articles in this issue.

Of course, controversies still abound — evolutionary biology tends towards heated debate more than other fields. For example, what is the relative importance of natural selection and the physics of development in the origin of novel phenotypes? Only through research in evo–devo will such questions be answered.

On page 943, Gerd Müller offers his views on how evo–devo can contribute conceptually to our understanding of evolution. Wagner and colleagues (page 921) take up one of Müller's themes in more detail — this is modularity, which is proving important for understanding both morphological diversity and the evolution of gene networks. The other two articles illustrate the importance of both old and new approaches to evo–devo: fossils can often be overlooked in favour of molecular methods in evo–devo, but Rudy Raff (page 911) shows how it remains crucial to integrate fossil evidence with genetic knowledge; and Postlethwait and colleagues (page 932) discuss how the explosion in genomics is contributing to evo–devo.

This focus is accompanied by a web focus (<http://www.nature.com/nrg/focus/evodevo>) that brings together evo–devo content from across Nature Publishing Group.

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