

Editorial

It is difficult to write a sensible summer editorial as we approach Christmas. The difficulties of completing our transfer to an e-journal with a small print run are now behind us and we can now turn to the papers that are scheduled for the next year with some optimism that we will return to publication in the 'cover month' by July 2006.

I organized a meeting of botanical journal editors who attended the International Botanical Congress in Vienna in July 2005. The consensus of our small group was that communication between journal editors can never be perfect, but the changing face of scientific publication presents new challenges that we must face and overcome if research journals in the non-medical sciences are to survive. The botanical sciences seem to have changed almost beyond recognition in the 50 years since I took my United Kingdom high school 'A' level examinations in Botany, Chemistry and Zoology. The changes in the 9 years between my taking the examinations and becoming an examiner were relatively small. The examinations were in essay format and there were obligatory practical examinations in which we were required to obtain a passing grade if we were to pass the whole course examination. Since then the style of examination and the course content in both high school and university botany have changed in many directions.

The biggest change without question has been the discovery that we can probe many plant process and evolutionary mechanisms using genetic probes. Poorly understood topics, such as pollen compatibility, plant defenses against parasites, hormone action, cell division, and the control of plant chemistry have all yielded to study using the tools of genetics and what we call molecular biology. Advances have often

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come from the use of microbial and plant model organisms, such as *Agrobacterium tumefaciens* (a bacterium commonly used to facilitate gene transfer between organisms), *Phytophthora infestans* (cause of potato blight that led to the Irish potato famine of the 19th century) and the weedy crucifer, *Arabidopsis thaliana* (whose small genome has been sequenced and allowed researchers to pinpoint the genetic location of genes that control a great many processes in plant development). The realization that computers could assist in collating and examining the genetic information wrapped up in a plant's DNA, indeed they are essential, led systematic, evolutionary and ecological botanists to look for DNA sequences that could be correlated with species identity, species relationships, and most recently responses to environmental stimuli. The capacity to move genes from one taxonomic group to another or within the group has provided the plant 'improver' with much more concise information for use in the search for better plants for food and forage.

While these benefits are enormous, they have come at a research price. The limited funds for plant research in all countries have been largely redirected to support these modern developments, and this is as it should be. However, many argue that our understanding of biodiversity, especially the ability to link identification of plants to their field ecology, and our ability to recognize endangered species have become severely impaired. As I listened to lectures and studied the poster presentations at the Botanical Congress, I was impressed by the enormous amount of sound and perceptive natural history based ecology that is going on in the universities of eastern and central Europe. Students who were using the 'modern' methods seemed also to understand the identity and natural history of their organisms, dare I say it, considerably better than their North American counterparts. The problem that these Europeans face is that few of the major journals are much interested in publishing the fundamental observations without which the high-tech approaches must eventually fail.

Journals such as **Davidsonia** must reach out to serve this community of rigorous and perceptive naturalists. As editor of this journal, I find myself urging my younger colleagues to dig out the basic natural history and descriptive ecology that lies unpublished in student theses and filing cabinets and put it through peer review in journals which seek to fill the gap in the modern literature of our science. The **Davidsonia** Editorial Board members are beginning to respond. The next step is to persuade colleagues and graduate students to get that ‘good stuff’ out so that we can be better prepared to deal with gaps in our understanding of biodiversity, but also the consequences of global warming.

In the next issue, I will address issues of journal publication in the developing world where most of the biodiversity exists, yet where researchers have few if any resources to publish their research even in their own country.