endopolyploid mitoses. Brodsky and Uryvaeva make a convincing case that the interpretation of endopolyploid nuclei originating via endomitotic cycles has been overused. One of their useful achievements is to stress the variety of mechanisms that can give rise to polyploid nuclei. What I object to is the conclusion that the suppression of mitosis necessarily gives rise to polytene nuclei *by definition.*

In Part II Brodsky and Uryvaeva are concerned with "modes and reasons for genome multiplication". In general I was rather disappointed with this, the conclusion of a long discussion on the biological significance of polyteny (by their definition) being rather weak: it is "advantageous". True, but not very helpful. They try and argue that there are some fundamental differences between polytene and diploid nuclei in their "protein spectra, [their] RNA fractions and [in] the activity of isozymes". I doubt it. Moreover they claim that the "redundancy" of their genetic information gives polyploid cells an advantage over diploid cells. This overlooks the fact that what (little) polyploid cells may win on this roundabout they lose on the swings, polyploid cells cannot usually be replaced by regenerative mitoses. In fact I consider any attempt at a general hypothesis to "account" for such a diverse phenomenon as the occurrence of polyploid nuclei as being naive. There can be no question but that polyploidy, endopolyploidy and polyteny (in Nagl's sense) have all originated many times, and independently, during the last 500 million years (or so).

One rather disturbing feature of this book is that the authors are so obviously unsure of themselves, and unauthoratitive, when discussing material of which they lack first-hand experience. This is especially true when they review work of a more molecular nature. My hackles rise when, for example, I read such statements as "After fertilisation, this RNA [and here, "this RNA" is the ribosomal RNA of the oocytes], which has accumulated in an inactive form, *determines* the early events of embryogenesis" (my emphasis). I puzzled some time over the statement that "the number of genes should correspond to the degree of perfection of form and function' and can only conclude that this is one of the instances where we suffer from reading a translation. Brodsky and Uryvaeva clearly fail to grasp the generality and significance of somatic chromosome pairing in the Diptera and have not grasped the issues involved in recent controversies concerning the underreplication of chromosome regions in polytene chromosomes. Similar instances of a failure to comprehend the literature in areas peripheral to their own research could be cited. Unfortunately these undermine one's confidence in their discussion of fields of which oneself has no first-hand knowledge.

My criticisms should not overshadow the fact that this *is* a useful book for those interested in nuclear structure and function. I can only repeat that the two main reasons for reading it are (a) that it will open your eyes to a literature which you may have overlooked and (b) that the discussion of the origin and significance of polyploidy, even if somewhat misdirected, at least will make you think.

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Experiments in plant tissue culture (2nd edition). John H. Dodds and Lorin W. Roberts. Cambridge University Press, Cambridge. 1985. Pp. xvii+232. Price £25 (HB), £8.95 (PB).

This text book offers a comprehensive practical introduction to research in plant tissue culture, at a reasonable price. All aspects of the work are covered, from planning a tissue culture laboratory through to protoplast production, somatic hybridisation, and the production of economically important compounds from cell cultures.

The chapter on aseptic technique should be read by all students before attempting tissue culture experiments, and there is a detailed consideration of basic tissue culture media. Many practical hints are included, such as the choice of the correct solvents for dissolving different plant growth regulators, and how to prepare stock solutions.

The main techniques commonly used in plant tissue culture research are covered by individual chapters, which are easy to follow. A brief introduction and explanation of the procedures and their potential uses precedes a detailed experimental procedure, ideal for teaching and/or training purposes. A number of relevant questions for further consideration by the student are also included, and each chapter concludes with a considerable number of useful references for further reading.

There are however some notable omissions, such as the consideration of protoplast electro-fusion techniques which are now becoming more widely used, and the brief page on plant tumors and genetic engineering, which seems rather inadequate considering the possible potential of such techniques, although they may have been considered to be outside the scope of this text. Overall, therefore, a useful laboratory manual for students of plant tissue culture.

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Evolution of fish species flocks. Anthony A. Echelle and Irv Kornfield (eds.). University of Maine at Orono Press, Maine. 1984. Pp. vi+257. Price $20.95US (PB), $28.95US (HB).

This book fills an important gap in the interpretation of the evolution of fish species flocks, it being 25 years