tention as a Dahlem workshop, this book is much more speculative than is *Genome Evolution*. At the molecular level are papers by Britten on genomic alterations and by Davidson on genomic regulatory organization, both referred to above. At the cellular level there are contributions by Wessels on the description of processes of metazoan morphogenesis; Freeman on comparative development of embryos, with an additional call for "judicious use of appropriate molecular chronometers" as the "only approach" capable of resolving phylum-phylum phylogenetic relationships; Wolpert on pattern formation; Kaufman and Wakimoto on the larger significance of homeotic and segment patterning loci; and Katz on the as yet rather poorly known "ontogenetic buffer mechanisms." A recurring theme of these four papers at the cellular level (and in the Group Report) is the need in attributing meaning to a pattern (or morphology) to differentiate the specific function of some process from incidental side effects of that process, whose "real" function is quite different, and from mere historical remnants. This problem of sorting out ultimate cause from proximal effect is also raised in the two papers at the level of the life cycle. Thus Stearns discusses life histories and asks, "How much of any particular plastic response in a life history trait has evolved, and how much is inevitable?," and Bonner and Horn in their essay on size, shape, and developmental timing confront the same issue of partitioning out incidental effects. Finally, at the level of evolution, Alberch and Gould respectively focus on developmental constraints in evolutionary processes and on the role of developmental timing in macroevolution.

In comparing these two books with regard to ease of use, one notes that Dover and Flavell write in their introduction that "we have not exercised editorial control over [the] contributions." Nor has an index been provided. The papers also lack abstracts, and titles of articles are not included in the references. The Dahlem volume has an index, its references include titles, and seven of its papers have abstracts. *Evolution and Development* has the spark of disciplined originality. The subject matter of *Genome Evolution* is equally fascinating, but the topic deserves a presentation more attentive to the needs of the reader. Together, the two books would make a superb basis for a seminar on evolution.

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Plasma Physics

Plasma Physics and Nuclear Fusion Research. RICHARD D. GILL, Ed. Academic Press, New York, 1981. xx, 688 pp., illus. $66.50.

The Culham Summer School on Plasma Physics has been held annually for 17 years and is recognized as having provided an excellent introduction to the field for many. This collection, which is based on lectures delivered in the course between 1978 and 1980, should be well received. Although one of the standard textbooks would be better for an introductory course, the book should interest anyone entering or wishing to get an overview of the field. I was pleased to see that on some subjects it is already slightly dated.

The authors have achieved their goal of providing a high-level introduction to a capable student who has little or no background in plasma physics. An attempt is made to treat simple models with enough detail and rigor to impart an understanding of the problems and techniques of each field, and the authors have provided a broad understanding of the organization of each and of what is being accomplished in it. Some of the chapters contain considerable detail and could serve as useful references. The cross-referencing in the early part of the book is well done, but more effort could have been expended in other places. There are many typographical errors throughout the book. They cause no problem but are annoying.

The first three sections of the book provide an introduction and foundation and cover theoretical developments. The first paper, by B. J. Green, is an excellent overview of the field. The next two sections cover experimental devices and heating and diagnostics. Though the discussions of tokamaks, pinches, stellarators, and mirrors in the section on experimental devices are clear and accurate, they are something of a disappointment. The authors of the five papers in the section were too careful in their efforts to delineate the problems and fail to convey the sense of accomplishment and optimism that now exists. The high temperatures achieved on the Princeton Large Torus in 1978 are reported almost in passing. Similar results with higher densities have since been obtained on the Poloidal Divertor Experiment. Recent developments have also introduced new enthusiasm into the program. These include the confinement of a 350 eV plasma for 10 msec in the ZT-40 reversed-field pinch, the achievement of current-free stellarator plasmas with 700 eV temperature, 10^{14} cm^{-3} density, and 35 msec confinement time with neutral injection on Wendelstein VII-A and 200 eV temperature, 5×10^{12} cm^{-3} density, and 40 msec confinement time with electron cyclotron resonance heating on Heliotron E, and the conception of a thermal barrier for the tandem mirror.

The final section covers inertial confinement, charged-particle beams, astrophysical plasmas, and computational plasma physics. The editor has limited the amount of material on these subjects, and though he was correct in doing so it makes one hunger for more.

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Processes of Cell Division

Mitosis/Cytokinesis. ARTHUR M. ZIMMERMAN and ARTHUR FORER, Eds. Academic Press, New York, 1981. xvi, 482 pp., illus. $55. Cell Biology.

The eukaryotic cell cycle culminates in a radical reordering of cellular contents. The restructured cytoskeleton and condensed chromosomes then follow an ancient choreography that is designed to ensure the precisely equal segregation of genetic information into the forming daughter cells. Because of the importance and the scale of these events in the cell, the subject of mitotic mechanism has captured the imagination of cell biologists since the 19th century. A great deal is known about the basic processes of mitosis and cytokinesis, but some fundamental questions remain unanswered and there is controversy about the nature of the mechanism of mitosis. In this collection, one will find described a wealth of experimental approaches and a wealth of results. Firm conclusions are harder to pin down.

The pace of research in this field is quickening. Many important and, one hopes, conclusive results have recently been published. Thus, some of the arguments of authors in this volume must now be tempered by more recent evidence, particularly with respect to the involvement of actin in the mitotic spindle and to the orientation of spindle microtubules. Nevertheless, the book is timely and broadly representative of the more established research approaches. It serves a valuable purpose in bringing