Vignettes: The Editorial Process

The Peer Review System. Some like it! Some dislike it! Some believe it is unfair! Some suspect it is ambiguous! . . .

Since authors are themselves peer reviewers and vice versa, they may take on a sort of split personality. In their bifunctionality each should be fair to the other for there is no other way to self-respect and self-control.

—*H. Nöth*, in the foreword to H.-D. Daniel's *Guardians of Science: Fairness and Reliability of Peer Review* (VCH Verlagsgesellschaft)

High scientific quality and readability are the editor's responsibility; he is the one who must effect the unnatural but necessary symbiosis between hard economic facts and soft scientific virtues that characterizes scientific publishing.

—*Magne Nylenna* and *Povl Riis*, as quoted in *Principles of Health Care Ethics* (Raanan Gillon, Ed.; Wiley)

stroika magazine *Ogonyok*. Although *glasnost* and *perestroika* were under way, the article caused a furious reaction on the part of Yegor Ligachev, a Politburo member and the official in charge of Soviet ideology, science, and education. At his demand, Soyfer and his family were deprived of Soviet citizenship before they were allowed to go to the West. Quite unexpectedly, Soyfer was also attacked on the other front: his publication was criticized in the press by certain geneticists who were obviously concerned about its harmful effects on the compromise with the former Lysenko camp and on the stability of the Soviet biology community.

Soyfer's approach to the problem of Lysenkoism is based on the dichotomy of "science" and "power" in the history of Soviet biology, and his tone is very emotional when he writes about the destruction of genetics and perversion of science by Lysenko and Stalin. At the same time, his emphasis on the psychological and personal dimension of the Lysenko story produces a rather paradoxical image of Lysenkoism "with a human face." It is interesting, for example, that there were certain positive traits in Lysenko's personality. Lysenko sincerely believed in his messianic role in science and was nothing of the careerist-opportunist he has often been portrayed as in both scientific and historical literature; he was not ungenerous and helped his followers and younger colleagues; in addition, he was not anti-Semitic, and there is some evidence that in the conditions of official anti-Semitism of the late Stalinist years he gave vigorous support to certain Jewish scientists from his camp. Soyfer's study also contains a great deal of information and a lot of personal details about the lives of other scientists involved in the Lysenko story, especially those whose role was hidden or lied about, about the public image of Lysenko and Lysenkoist biology as it was shaped by Soviet newspapers and mass media, and about the interiorization of political rhetoric, of various cultural and ideological stereotypes, by Soviet science. This makes his book not only a pioneering study in the history of Soviet biology and of science politics under Stalin but also an important contribution to our understanding of the everyday life of the Soviet science community.

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Embryogenesis

Developmental Biology of Ascidians. NORIYUKI SATOH. Cambridge University Press, New York, 1994. xx, 234 pp., illus. $64.95 or £30. Developmental and Cell Biology Series.

A revolution in biology in the late 19th century provided the first insights into how embryos develop. Using the gametes of aquatic organisms, the biologists of this era first described in exquisite detail the cell lineages of development and then asked whether these normal lineages were inviolate or could be perturbed. These studies, done on embryos of ascidians, mollusks, worms, sea urchins, and amphibians, laid the groundwork for our views of how embryos work.

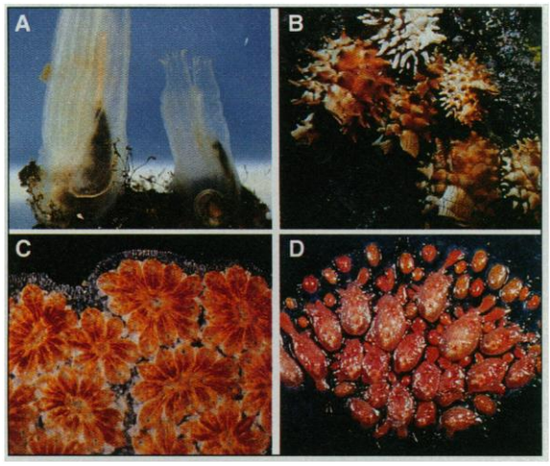
The current, late-20th-century perspective is that there are several ground plans, which exist as a continuum between different organisms, for laying down the body plan in the early embryo. In some organisms, such as mammals, there is no rigid map of the future embryo in the oocyte, and embryos depend on cell-cell interactions to set up the body plan. Other organisms, such as ascidians and fruit flies, possess a rigid map set into the oocyte (or generated shortly after fertilization in the zygote) that determines the body plan; cell-cell interactions are then important for later specification of the embryo parts.

The ascidian embryo figured importantly in the early work, being used by Chabry in 1887 in the first experiments in which parts of embryos were removed. This French scientist found that the embryos could not compensate for a lost part and that the blastomeres were in fact a mosaic of the future larva; his work led to the similar experiments of Roux on amphibians and Driesch and Boveri on sea urchins.

Although the bulk of developmental work today is done on flies, mice, sea urchins, and worms, there has been a resurgence of interest in the ascidians, with many groups in Japan, the United States, and Italy studying these next-of-kin to the vertebrates. The reasons for this renewed fascination become apparent as one reads Satoh's book, the first comprehensive monograph ever on the development of this group of animals.

First, there is the odd reproductive biology of these sessile filter-feeders, involving the production of eggs surrounded by a chorion and unique extra-ovarian cells. Sperm pass through this chorion but in the passage leave their mitochondria behind. Then there is the still-not-understood block to self-fertilization seen in many species of these hermaphroditic organisms, which T. H. Morgan first studied in 1904. And then there is the remarkable reorganization of the egg at fertilization, also first described at the turn of the century by Conklin, but now better understood in terms of calcium rises and calcium oscillations, movements of cell motors, and emplacements of specific cytoplasms in relation to the cytoskeleton. And again referring to Conklin and his original cell lineage, we now have an exquisite cell lineage worked out by Satoh and his collaborators along with identified molecular markers so that the nature of this important oocyte reorganization is on the verge of being understood. And then there is the elegant evidence for cytoplasmic determinants, which have been so nicely demonstrated by Whittaker and his colleagues in their description of differentiation in the absence of cleavage.

The ascidians also provide a fascinating



"Representative species of ascidians. (**A**) A cosmopolitan, solitary ascidian, *Ciona intestinalis* (left); at right is *C. savignyi*. (**B**) The Japanese ascidian *Halocynthia roretzi*. (**C**) A cosmopolitan, colonial ascidian, *Botryllus schlosseri*. (**D**) A colonial ascidian, *Polyandrocarpa misakiensis*." [From *Developmental Biology of Ascidians*; photographs a, c, and d provided by A. Hoshino, Y. Saito, and K. Kawamura, respectively]

natural laboratory for examining how a few changes might produce large manifestations in morphology. Some ascidians of the genus *Molgula* develop as tailed or nontailed forms, and the morphological and molecular differences in development between these closely related species are now being described by Swalla and Jefferey. Finally, and I am leaving out much, there is the asexual reproduction characteristic of the colonial ascidians and the fascinating questions raised by this type of development. And related to this is the phenomenon of recognition or non-recognition that these colonial tunicates exhibit. This bears a striking resemblance to the immune recognition responses of the related vertebrates, and this phenomenon is now the subject of collaborative research between groups in my own institution, Japan, and Israel.

Satoh's book provides a good comprehensive review of the reproductive and developmental biology of the ascidians, as well as details of their general biology and physiology. This short and readable yet comprehensive volume will stimulate even more research on these interesting marine organisms whose ancestry we share.

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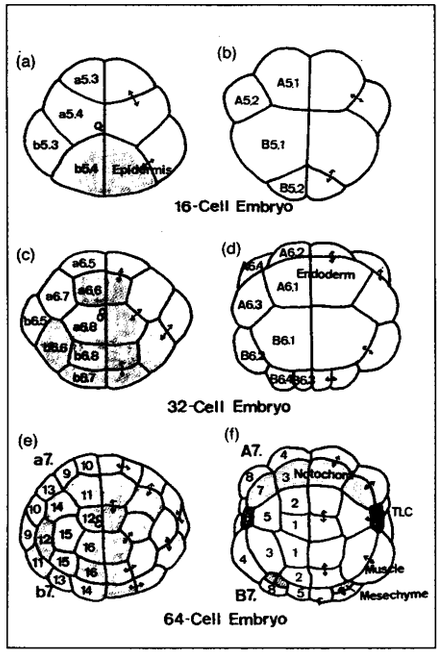

"Progressive restriction of developmental fates during ascidian embryogenesis. . . . Blastomeres whose developmental potential has been restricted to give rise to only one kind of tissue are shown by color: green, epidermis; yellow, endoderm; pink, muscle; orange, notochord; blue, mesenchyme; red, trunk lateral cells." [From *Developmental Biology of Ascidians*]

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Other Books of Interest

Organic Syntheses Based on Name Reactions and Unnamed Reactions. A. HASSNER and C. STUMER. Pergamon (Elsevier Science), Tarrytown, NY, 1994. vii, 453 pp., illus. $104 or £65; paper, $39.50 or £28. Tetrahedron Organic Chemistry Series, vol. 11.

This is a book from which one can learn the particulars of what is meant by such terms as "Arndt-Eistert homologation," "Curtius rearrangement," "Koser tosylation," and "Wenzel-Imamoto reduction." In all, the authors include (typically allotting a page to each) well over 400 reactions, discussed in alphabetical order from Alder (ene) reaction—a "sigmatropic rearrangement with H-transfer and C–C bond formation (inter- or intramolecular) and chiral induction"—to Zinin benzidine (semidine) rearrangement. For each reaction are given, in addition to a brief definition such as the one just quoted, structural diagrams, references to the original and selected subsequent sources in the literature, and a description of the experimental technique. As to the principle of selection, the authors note both that some reactions "are so obvious mechanistically to the modern organic chemistry practitioner that we have in fact omitted them" and that "others are so important and so well entrenched by name . . . that it is impossible to ignore them," respective examples being the Schotten-Baumann procedure and the Baeyer-Villiger ketone oxidation. They also report that some living authors were consulted about the appropriateness of their eponyms. Several indexes have been provided to facilitate use of the book—of names, reagents, reactions, and, in a fold-out chart, functional group transformations.

—Katherine Livingston

Relaxation Phenomena in Condensed Matter. WILLIAM COFFEY, Ed. Wiley, New York, 1994. xiv, 766 pp., illus. $150 or £161. Advances in Chemical Physics, vol. 187.

As an outcome of a 1991 visit to Russia William Coffey has assembled for this volume of *Advances in Chemical Physics* a "representative selection" (in English) of Russian work on relaxation phenomena. The work opens with a 30-page review of the theory of the dynamic susceptibility of magnetic fluids by M. I. Shliomis and V. I. Stepanov. The longest paper in the volume is a 255-page discussion by Vladimir I. Gaiduk and Boris M. Tseitlin of the complex susceptibility of a liberating dipole in an axially symmetric potential well. In two of the six remaining papers, which range in length from 50 to 100 pages, Yuri P. Kalmykov and Sergei V. Titov expound a memory-function approach to extended rotational diffusion models of molecular reorientations in fluids and Tatiana S. Perova reports on her work on far-infrared and low-frequency Raman spectra of condensed media. In two papers concerned with aqueous solutions the structure and related properties of solutions of electrolytes and nonelectrolytes are discussed by A. K. Lyashchenko and Yuri I. Khurgin *et al.* discuss millimeter absorption spectroscopy with special reference to solutions of medical interest. In the two final papers S. A. Nikitov discusses magnetic excitations in ferromagnetic media and Yuri L. Raĭkher and Shliomis discuss the effective field method in the orientational kinetics of magnetic fluids (a term they define as referring to "a stable colloidal suspension of ultrafine particles of a ferromagnet or ferrite in any ordinary liquid") and liquid crystals. Each paper has its own table of contents and reference list, and most include lists of symbols used. In addition, there are subject and author indexes for the volume as a whole.

—Katherine Livingston