of experiments attributed to Sydiskis and Roizman (1967) which, alas, these authors have never done. This is but one of several examples. The authors still cling to the notion that some viral polypeptides are synthesized in the nucleus (p. 190), that analyses of detergent-treated (although this fact is obfuscated) nuclei yield meaningful measurements of lipids in the nuclear membrane. I was also puzzled by the apparently profound conclusion (pp. 194–196) that whereas virus-specific antigens are integrated into plasma membrane, viral proteins are not. I would recommend that the reader use the chapter as a source of bibliography and ignore the text.

On the whole, despite the foibles, this is a good book. The bibliography alone is worth the money. The many superb chapters constitute a worthy foundation and source of information on many aspects of herpesviruses for years to come.

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Ciliates

Biology of Tetrahymena. ALFRED M. ELLIOTT, Ed. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1973. x, 508 pp., illus. $35.

The ciliate genus *Tetrahymena* looms out of obscurity into the latest textbooks of cell biology. Unfortunately, however, many biochemists using it know little concerning its life cycle, and its morphologists are often similarly uninformed about its molecular and physiological properties. Elliott's new volume, if read carefully, may improve the situation dramatically. The contributed chapters cover the many fruitful lines of experimentation that have developed since the capture of *T. pyriformis* in sterile culture in 1923. Among the potentially more bewildering topics that are reviewed with clarity, special mention must be made of gluconeogenesis, physiological control mechanisms, nucleic acid pathways, and genetics. The "general bibliography" at the end of the volume contains 1687 references cited in full, accounting for about 60 percent of the publications relating to this genus.

A number of important technical caveats are aired, but there is one outstanding omission: strain designations relating to forms lurking under the "taxonomic umbrella," *T. pyriformis*, are known to be thoroughly confused. Failure to repeat someone's result may simply mean that your "strain W" is different from his. Worse, the issue of cryptic species within the nominal species *T. pyriformis* continues to be ignored, in the face of ample documentation of genetic and phenotypic diversity. There is general agreement among the contributors that "if the concept of a biological species were adhered to," the breeding groups (syngens) would qualify as separate species. But no one is willing to venture why the biological species concept should *not* be adhered to. Otherwise, the chapter on taxonomy, by John O. Corliss, is unusually detailed and restrained. Most contributors have cited many sets of contradictory results, a number of which are resolved satisfactorily. At least part of the remaining discrepancies must be due to strain differences, the recognition of which might also disarrange some proposed metabolic pathways based on a composite of several strains.

Owing to a long delay in publication, progress has far outstripped several chapters, which may seem rather staid because particular contributors tired of waiting and published similar reviews elsewhere. By far the longest and, in my opinion, the best chapter is by Sally Allen and Ian Gibson, covering the extremely difficult subject of *Tetrahymena* genetics with admirable precision. Allen and Gibson have also concocted an imaginative new model for the organization of the macronucleus, fetchingly illustrated by the symbols $, ¢, £, d. If the reader can suppress his hysteria sufficiently to turn the page, he is greeted by a further illustration, this time with hearts and flowers. The new model supposes replicating "'master" and nonreplication "slave" copies of individual "replicons," with 45 "slaves" for each "master" to account for the ploidy of the macronucleus. Unfortunately the new theory is at odds with the results of density-label experiments indicating that most, if not all, of the DNA replicates semiconservatively during one cell cycle. How this ciliate organizes its vegetative nucleus remains a real puzzle, among a host of others equally baffling.

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Abstracts of the Standard Edition of the Complete Psychological Works of Sigmund Freud. Carrie Lee Rothgeb, Ed. International Universities Press, New York, 1974. x, 762 pp. Paper, $4.95.

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