tinctions clearly occurred by the end of the Triassic Period, but exactly when, or how many major extinction events occurred, is still open to vigorous discussion. This is exemplified in chapters by Simms *et al.* and by Benton and in a well-reasoned summary by Padian. At issue are the number of extinction events—one or two—at the end of the Triassic, whether marine extinction coincides with extinction in the terrestrial realm, and even the possibility of an extraterrestrial cause for terminal Triassic extinctions. This is good stuff. And out of that time—somehow—spring the major tetrapod groups of our modern world.

In a humorous mutation of the parable of the blind men and the elephant, Padian compares the investigation of Late Triassic vertebrate-bearing terrestrial sediments to an attempt to understand the workings of an internal-combustion engine by using blueprints of six different kinds of engines torn into jigsaw puzzles and with some pieces missing. I am not much of a grease monkey myself, but I appreciate the Earth as an engine that works. As a manual to begin investigating the workings of the Late Triassic and Early Jurassic world, this is a good book.

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Chemical Paperwork

Molecular Origami. Precision Scale Models from Paper. ROBERT M. HANSON. University Science, Sausalito, CA, 1995. xvi, 223 pp., illus. Paper, $22.

Chemical structures have to be understood in three dimensions, yet books and blackboards are in two, so chemistry classrooms and labs are often decorated with molecular models made of plastic, styrofoam, and the like. Many students purchase modeling kits that allow structures with "standard" bond lengths and angles to be constructed. Trickier structures, such as ones with fivefold symmetry or unusual bond lengths, can be difficult to construct, and the nuances of different structures are lost in an effort to ease the task of construction.

Hanson takes an approach that requires more patience and dexterity but likely yields a more satisfying learning experience. He has developed a workbook for constructing paper models of molecules, which he calls "molecular origami." Each structural type is introduced within the framework of molecular orbital theory, but Hanson emphasizes that the models, which reproduce the known bond lengths and angles, make no assumptions about bond orders or unpaired electrons. Instead, theory must be used to understand why the structures result. Thus the student can make models of NH_3, NF_3, and PF_3 and interpret the changes in bond lengths and angles. A series of questions are included with the simpler structures, and an answer guide is provided. More than 70 structures are explored, including coordination compounds such as iron carbonyl [$Fe_2(CO)_9$], network solids such as silicates, and even the highly complex shapes of C_{60} and the boron hydrides.

Clear instructions are given for the actual cutting, folding, and taping of the models; making some of the "inside" folds on the more complicated shapes is facilitated by putting a straight edge (ruler or business card) under the paper. The examples should prove useful in teaching chemical bonding concepts not only in high school and freshman chemistry classes but also in undergraduate inorganic chemistry. The models could also aid physical chemists looking for structural models to illustrate symmetry concepts in the application of group theory.

Phillip D. Szuromi

Vignettes: Sea Changes

Some inspired pack of rhipidistians or Dipnois came ashore for the first time in the late Devonian, either looking for a meal or trying to avoid becoming one. Maybe they were pursuing the as yet unknowable vertebrate dream of a future filled with cheeseburgers, pizza, Caesar salads, decent wine, homes of their own, and a new car every two years.

—*Brad Matsen*, in *Planet Ocean: A Story of Life, the Sea, and Dancing to the Fossil Record* (Ten Speed Press)

Cruise the aisles of a grocery store and it's hard to find many products without algae and algae byproducts. Alginates help keep beer foam from collapsing when it comes in contact with lipstick. The same alginates keep pimentos firm in green olives, stabilize pulp in juice concentrates, thicken instant soups, and substitute for oil and eggs in no-fat mayonnaise. Carrageenan is used as a stabilizer in air freshener gels, anti-icers, breads, infant formula, liquid cleanser, and pumpkin pie. Betacarotene pigment provides a natural yellow-orange food coloring for cheese, butter, beverages, pastries, and popcorn. Agar is found in canned meats, jellies, and marshmallows. And in the foreign food aisle you might find dried algae.

—*Michael Weber* and *Judith Gradwohl*, in *The Wealth of Oceans* (Norton)

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Books Received

Adult T Cell Leukemia and Related Diseases. Takashi Uchiyama and Junji Yodoi. Landes, Austin, TX, and Springer-Verlag, New York, 1995 (distributor, CRC Press, Boca Raton, FL). vi, 139 pp., illus. $59. Medical Intelligence Unit.

Advanced Calculus of Several Variables. C. H. Edwards, Jr. Dover, New York, 1995. xii, 457 pp., illus. $13.95. Reprint, 1973 ed.

Advances in Acoustic Microscopy. Vol. 1. Andrew Briggs, Ed. Plenum, New York, 1995. xxxii, 350 pp., illus. $79.50.

The Ages of Gaia. A Biography of Our Living Earth. James Lovelock. Norton, New York, 1995. xxii, 255 pp., illus. Paper, $12 or $C16. Reprint, 1988 ed.

Aging. A Natural History. Robert E. Ricklefs and Caleb E. Finch. Scientific American Library (HPHLP), New York, 1995 (distributor, Freeman, New York). xiv, 209 pp., illus. $32.95.

AIDS Update 1994-1995. An Annual Overview of Acquired Immune Deficiency Syndrome. Gerald J. Stine. Prentice Hall, Englewood Cliffs, NJ, 1995. xlvi, 381 pp., illus. Paper, $18.67. Alternate version of *Acquired Immune Deficiency Syndrome* (1995).

Bats. A Community Perspective. James S. Findley. Cambridge University Press, New York, 1995. xii, 167 pp., illus. $19.95. Cambridge Studies in Ecology. Reprint, 1993 ed.

Benzodiazepine Receptor Inverse Agonists. Martin Sarter, David J. Nutt, and Richard G. Lister, Eds. Wiley-Liss, New York, 1995. x, 304 pp., illus. $75.

Biology of Microorganisms. Thomas D. Brock *et al.* 7th ed. Prentice Hall, Englewood Cliffs, NJ, 1994. xviii, 909 pp., illus. $73.

Birth Control Vaccines. G. P. Talwar and Raj Raghupathy. Landes, Austin, TX, 1995 (distributor, CRC Press, Boca Raton, FL). xii, 171 pp., illus. $79. Medical Intelligence Unit.

Braving the Elements. Harry B. Gray, John D. Simon, and William C. Trogler. University Science, Sausalito, CA, 1995. xiv, 418 pp., illus. Paper, $29.50.

Calculating the Secrets of Life. Applications of the Mathematical Sciences in Molecular Biology. Eric S. Lander and Michael S. Waterman, Eds. National Academy Press, Washington, DC, 1995. xiv, 285 pp., illus. $39.95.

Captain James Cook. Richard Hough. Norton, New York, 1995. xviii, 398 pp. + plates. $29.95 or $C37.99.

Carbon-13 NMR Spectroscopy of Biological Systems. Nicolau Beckmann, Ed. Academic Press, San Diego, CA, 1995. xx, 334 pp., illus. $69.95.

Catching the Light. The Entwined History of Light and Mind. Arthur Zajonc. Oxford University Press, New