BOOK REVIEWS

Partnerships

Creative Couples in the Sciences. HELENA M. PYCIOR, NANCY G. SLACK, and PNINA G. ABIR-AM, Eds. Rutgers University Press, New Brunswick, NJ, 1996. xii, 369 pp. + plates. $50; paper, $18.95. Lives of Women in Science.

In standard accounts of the history of science, women scientists are hardly there. Few of us know even the names of such geniuses as Laura Bassi or Sophie Germaine or Mary Somerville, and although everyone has heard of Marie Curie, her two Nobels did not dispel the notion—despite all evidence to the contrary—that she couldn't have done it without a man. Over time, most women scientists have been written off by generations of historians who regarded women as incongruities to be ignored outright or otherwise explained away. In the past, such historiographic obtuseness helped retard women's education and their entrance into the scientific professions; it has also weakened the history of science as a whole. Women's studies is powerful not only because it rehabilitates forgotten women and their science but because it contributes to an expanded, more nuanced understanding of social institutions, scientific practice, the personal lives of scientists, and science itself.

In *Creative Couples in the Sciences* the editors focus on collaborative scientific marriages. The subject is a rich source for biographical studies of women in science, since marriage to a fellow scientist was often the best and sometimes the only way for a woman to work in science. Historically, however, "scientific marriage more frequently enhanced a woman's prospects for carrying on significant research than for securing credit for that research" (p. 8). It is essential, therefore, to go beyond the public record to private correspondence, memoirs, and other personal documents. The authors of the 17 essays in this volume have done just this. They present a remarkable variety of scientific lives, from the early 19th to the mid-20th century, in both North America and Europe, from the "hard" to the "soft" sciences. The marital styles vary widely. In some marriages, creativity and intimacy enhanced each other; some were egalitarian, others traditional; and a few ended in estrangement or divorce.

Representing the ultimate in successful collaboration, the three Nobelist couples were devoted spouses who were essentially equal as scientists. Aware that society would tend to view the wife as the subordinate and her contributions as derivative, Marie and Pierre Curie took care to cite and to some extent separately publish Marie's independent work. Their daughter Irène, armed with the Curie name and lifelong training, entered into a marriage with Frédéric Joliot that was scientifically egalitarian from the start. Carl and Gerty Cori were close collaborators all their adult lives, but their careers typified existing gender divisions: shortly after they emigrated to the United States, Carl was told that it was "un-American" for a man to work with his wife, and indeed "Mrs. Cori's" rank and pay remained well below that of "Professor Cori" until just before they were jointly awarded the 1947 Nobel Prize in Physiology or Medicine.

Several 19th-century couples exemplify the traditional roles of husband as scientist-instructor and wife as helper-student, but the women's contributions were often prodigious nevertheless. John Gould's career as an ornithologist was greatly aided by the superb illustrations of his wife, Elizabeth, who published over 650 lithographic plates, traveled with him to unexplored regions of Australia, and died in 1841, after 10 years of marriage and the birth of their fifth child.

Fifty years later, Anna Comstock began her career in a similar mode, as an illustrator for John Henry Comstock's entomology lectures and publications, but she eventually became a nationally known science educator and a full professor at Cornell. I was fascinated by this couple's experience with early coeducation in the United States, a highly egalitarian marriage (household tasks were shared or avoided), the development of entomology and nature-study at Cornell, and the "back-door" academic alternatives used by American women in the early 20th century, including teaching, rural education, public lecturing, and science writing.

There is more: zoologist couples; astronomers with varying patterns of collaboration; biologists and astronomers in 20th-century Canada; a pair of itinerant British mathematicians; the renowned British crystallographer Kathleen Lonsdale and her supportive husband, Thomas; social scientists Alva and Gunnar Myrdal, who consciously designed their marriage and even their house to meet the demands of family and work. In the failed marriages—particularly those of Albert Einstein and Mileva Marić and of Dora Black and Bertrand Russell—the collaborations were also stunted. Several of these essays are very romantic to read. Kate and T. S. Brandegee, for example, were pioneering botanists of the flora of California and Mexico; their honeymoon in 1889 was a 500-mile walk from San Diego to San Francisco, "collecting plants all the way." Other marriage-collaborations were tragic.

This is a valuable collection, well documented and highly readable. In some essays I would have liked more scientific detail, but perhaps that was not possible for a volume of this size. The editors' introduction is a well-honed, thorough analysis of the field; in an appendix they also provide a referenced list of additional couples and other cross-gender collaborators. *Creative Couples* enriches our understanding of the history of women in science, the nature of scientific collaborations, and the immense changes in women's lives over the past two centuries. It will undoubtedly serve as the basis for expanded biographies and a stimulus for further research.

Ruth Lewin Sime
Department of Chemistry, Sacramento City College, Sacramento, CA 95822, USA

■

Genetic Complexities

Genomic Imprinting. Causes and Consequences. R. OHLSSON, K. HALL, and M. RITZEN, Eds. Cambridge University Press, New York, 1995. xvi, 374 pp., illus. $80 or £45.

Genomic Imprinting: Causes and Consequences is a collection modeled on 24 lectures presented at a 1994 symposium sponsored by the Nobel Foundation. The names of most of the contributors will be familiar to those who have followed the field, as will the subject matter of most of the papers. But this is unlikely to prevent the vast majority of readers from encountering a number of pleasant surprises. Côté's treatment of the possible effects of mitotic recombination on the maintenance or disruption of imprinting is both novel and thought provoking. The chapters by Wolffe and by Singh and James will give many readers pause as they are offered an in-depth look at the potential

for epigenetic modifications, other than DNA methylation, to contribute to the imprinting phenomenon. Haig and Trivers's intellectually rigorous approach to the evolution of imprinting (or, perhaps more properly, examination of the selective forces that might maintain imprinting) is a refreshing departure from the generally naïve and undisciplined ramblings on the subject that are found floating aimlessly and unattractively, like flies in the soup, in almost all previous reviews of the subject (my own included).

There is a heavy emphasis placed on the significance and biochemical characteristics of a few genes, particularly *Igf2/IGF2*, *Igf2r*, and *H19* (16 of the papers discuss one or more of these genes in some detail). This emphasis probably reflects the status of these genes as the first endogenous genes to be identified as imprinted, but the volume might have provided less repetitive reading by venturing farther afield. In this respect, the two-chapter section on Prader-Willi syndrome comes as a welcome addition.

The initiated will feel that, like most symposium volumes, the collection suffers from the fact that most contributors have included very few data that have not been published elsewhere. The reader who wishes a good introduction to the subject is unlikely to feel that the volume is compromised by this. In fact, a major strength of this collection, for the student and the casually interested reader, is in the way the majority of contributors have summarized the results of many experiments in a few sentences. Of course, this forest-rather-than-trees approach is a double-edged sword (saw?) because in a few cases different contributors draw opposite conclusions from precisely the same set of experiments. The neophyte may experience the same disheartening sense of betrayal that I once had upon discovering that a statement given as "fact" by a trusted mentor proved, ultimately, to be false ("Not everything I know is true," he responded).

To my mind, the subtitle of the collection is misleading. None of the contributors would, if pressed, admit the existence of a convincing case for the "cause" of genomic imprinting. That we do not know what "causes" genome imprinting (or by what mechanism it is established) is, of course, part of the attraction of the subject. Such intransigence in the face of the best efforts of a large number of talented and intelligent people is the reason such a collection of reviews as this is still of interest. The conversational tone of the contributions further makes for entertaining reading. Those who have heard the contributors speak will have little trouble imagining Davor Solter, who must bear primary responsibility for unearthing this biological Pandora's Box in the first place, voicing, in his mellifluous baritone and slightly accented English, a pertinent subheading of his and Gilligan's first chapter: "Imprinting: who needs it?"

Carmen Sapienza
Fels Institute for Cancer Research,
Department of Pathology,
Temple University School of Medicine,
Philadelphia, PA 19140, USA

■

Vignettes: Ponderables

There's no doubt that humans commonly hallucinate. There's considerable doubt about whether extraterrestrials exist, frequent our planet, or abduct and molest us. We might argue about details, but the one category of explanation is surely much better supported than the other. The main reservation you might then have is: Why do so many people today report this particular set of hallucinations? Why somber little beings, and flying saucers, and sexual experimentation?

—*Carl Sagan*, in *The Demon-Haunted World: Science as a Candle in the Dark* (Random House)

We know we will spend money or pass laws in the face of some risks but not others. Even granting that we select those risks influenced by cultural biases, even granting that we will judge the success of our policies influenced by cultural biases, what do we say to the man who whistles to keep elephants away in the heart of Manhattan? Surely he is expending a great deal of unnecessary energy. Is global warming simply the perfect foil for the apocalyptic needs of sectarian organizations? Or is it the sort of remote threat that hierarchical and individualist organizations tend to be blind to?

—*Charles T. Rubin*, in *The Green Crusade: Rethinking the Roots of Environmentalism* (Free Press)

Books Received

The Algorithmic Beauty of Plants. Przemyslaw Prusinkiewicz and Aristid Lindenmayer. Springer-Verlag, New York, 1996. xii, 228 pp., illus. Paper, $29.95.

Amber. Window to the Past. David A. Grimaldi. Abrams, New York, in association with the American Museum of Natural History, 1996. 216 pp., illus. $49.50 or C$65.

Beyond Death. The Chinchorro Mummies of Ancient Chile. Bernardo T. Arriaza. Smithsonian Institution Press, Washington, DC, 1995. xvi, 176 pp., illus., + plates. $39.95.

Caenorhabditis elegans. Modern Biological Analysis of an Organism. Henry F. Epstein and Diane C. Shakes, Eds. Academic Press, San Diego, 1995. xxii, 659 pp., illus. $110; spiralbound, $59.95. Methods in Cell Biology, vol. 48.

Civilizations of the Ancient Near East. Jack M. Sasson, Ed. Scribner's, New York, 1995. 4 vols. lxii, 2966 pp., illus. $449.

Ethnobotany. Evolution of a Discipline. Richard Evans Schultes and Siri von Reis, Eds. Dioscorides (Timber Press), Portland, OR, 1995. 414 pp., illus. $49.95.

Frontiers of Complexity. The Search for Order in a Chaotic World. Peter Coveney and Roger Highfield. Fawcett Columbine (Ballantine), New York, 1995. xviii, 462 pp., illus., + plates. $27.50 or C$38.50.

Human Enterovirus Infections. Harley A. Rotbart, Ed. ASM Press, Washington, DC, 1995. xvi, 445 pp., illus. $79.

Ludwig Boltzmann. His Later Life and Philosophy, 1900–1906. Book Two: The Philosopher. John Blackmore. Kluwer, Norwell, MA, 1995. xvi, 315 pp., illus. $269 or £169 or Dfl. 380. Boston Studies in the Philosophy of Science, vol. 174.

Medical Malpractice and the American Jury. Confronting the Myths about Jury Incompetence, Deep Pockets, and Outrageous Damage Awards. Neil Vidmar. University of Michigan Press, Ann Arbor, 1995. xii, 318 pp. $34.95.

Peptides. Synthesis, Structures, and Applications. Bernd Gutte, Ed. Academic Press, San Diego, 1995. xiv, 511 pp., illus. $69.95.

Pythagoras' Trousers. God, Physics, and the Gender Wars. Margaret Wertheim. Times, New York, 1995. viii, 280 pp. $23.

Scientific Practice. Theories and Stories of Doing Physics. Jed Z. Buchwald, Ed. University of Chicago Press, Chicago, 1995. xiv, 398 pp., illus. $65 or £51.95; paper, $24.95 or £19.25.

Spectroscopic Methods for Determining Protein Structure in Solution. Henry A. Havel, Ed. VCH, New York, 1995. xii, 250 pp., illus. $89.95.

Storm Over a Mountain Island. Conservation Biology and the Mt. Graham Affair. Conrad A. Istock and Robert S. Hoffmann, Eds. University of Arizona Press, Tucson, 1995. x, 291 pp., illus. $39.95; paper, $19.95. Based on a workshop, Tucson, AZ, Oct. 1989.

The Story of Writing. Andrew Robinson. Thames and Hudson, New York, 1995 (distributor, Norton, New York). 224 pp., illus. $29.95.

Successful Industrial Experimentation. Brett Kyle. VCH, New York, 1995. xiv, 139 pp., illus. $69.95.

Thermophiles. K. R. Sowers *et al.*, Eds. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1995. xvi, 217 pp., illus. Spiralbound, $65. Archaea: A Laboratory Manual.

A Tour of the Calculus. David Berlinski. Pantheon, New York, 1996. xviii, 332 pp., illus. $27.50 or C$38.50.

Twentieth Century Physics. Laurie M. Brown, Abraham Pais, and Brian Pippard, Eds. Institute of Physics Publishing, Philadelphia, and American Institute of Physics Press, Woodbury, NY, 1995. 3 vol. xxxviii, 2550 pp., illus., boxed. $375 or £2550.