also provided. An appendix lists these codes and the references for the associated crystal structure.

But this book is more than a compendium of structural facts about biomolecules. Throughout, the authors show how analysis of the hydrogen-bonding properties of biomolecules leads to an understanding of why they are assembled from the particular subunits that compose their structures. One example is the discussion of how the allowed tautomeric forms of thymine, cytosine, adenine, and guanine control their hydrogen-bond donor-acceptor properties, which in turn determine their unique role in the flow of genetic information.

*Hydrogen Bonding in Biological Systems* is informative and eminently usable. It is, in a sense, a Rosetta stone that unlocks a wealth of information from the language of crystallography and makes it accessible to all scientists.

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## Other Books of Interest

**Phage and the Origins of Molecular Biology.** JOHN CAIRNS, GUNTHER S. STENT, and JAMES D. WATSON, Eds. 2nd ed. Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY, 1992. xii, 366 pp., illus. $35.

One of the first salvos in the ongoing attempt to write the history of molecular biology was the famous "phage volume," put together at the Cold Spring Harbor Laboratory in 1966 to honor the 60th birthday of Max Delbrück, one of the field's founders. To that much-heralded work over 30 of Delbrück's friends and associates contributed their personal reminiscences, observations on the growth of the field, and comments on their own particular areas of research. Now the publisher has reissued it in this "expanded edition." For the new volume John Cairns, who as he puts it "had had nothing to do with the origins of molecular biology" but became involved in the project by virtue of being director of the laboratory, contributes a preface recounting some of the vicissitudes encountered in getting the original work into print. The initial editing of the manuscripts was done by Gunther Stent, who though a "punctilious and immensely skillful" editor has a "very distinctive style," so that Cairns in many cases found himself "substituting *stet* for Stent" in the interest of preserving the spirit of the occasion and minimizing authors' dismay. Another difficulty was the fear that had been instilled in the contributors by Delbrück's own exacting manner, which led them to express the need for endless revisions. Extraordinary means were required to extract manuscripts from some delinquent authors, including James Watson, then reportedly more concerned with his own larger work on the theme. Cairns concludes by proffering a photograph of Delbrück dressed as Theseus for a performance of *A Midsummer Night's Dream.* There follows a reprinting of the original 352-page collection (which was reviewed in *Science* **155**, 1091 [1967]). A final section of the volume, opening with a 1979 portrait of Delbrück, contains a 1967 review of the book by John Kendrew from *Scientific American*, Stent's 1968 essay "That was the molecular biology that was," reprinted from *Science*, and his obituary for Delbrück, first published in *Genetics* in 1982.

*—Katherine Livingston*

**Finders, Keepers.** Eight Collectors. ROSAMOND WOLFF PURCELL and STEPHEN JAY GOULD. Norton, New York, 1992. 157 pp., illus. $50.

This collaboration between a photographer (Purcell) and a writer (Gould) is devoted to the category of objects found, kept, and collected in the name of natural history. Most conspicuously the book is a lavish rendition of color photographs, and the photographer's statement of her principle of operation gives a good sense of what they are like: "Although I photograph everything just slightly out of context (fossil on a wooden chair, pigs on the floor, only parts of the ichthyosaurs), I tried as much as possible not to add inappropriate detail. Once seen, however, it is hard to separate the cigar box from the brain cast [it contains]; it is difficult to ignore blue-bleached cotton when it appears in the vicinity of a fossil shark tooth." As for the collectors, more than eight are in fact dealt with in the nine essays Gould has contributed. Figuring most prominently are Peter the Great of Russia and his Dutch supplier Frederik Ruysch, one of whose specialties was sentimentally adorned mountings of parts of human infants; Philip Franz von Siebold (1796–1866), who pursued his avocation in Japan in an era of that nation's history most difficult for foreigners; Willem Cornelis van Heurn of Leiden (1887–1972), a "taxonomist's taxonomist" who traveled the Dutch empire in search of animal, especially mammalian, specimens; Eugen Dubois, the discoverer of "Java Man"; Walter Rothschild (1868–1937), particularly fascinated by birds; the fossil-collectors John Woodward (1665–1728) and his contemporary Agostino Scilla, some of whose drawings are included in the book along with photographs of the original specimens; Thomas

## Vignette: Looking Toward Calcutta

When, at sixteen, he matriculated quite by chance with a sheaf of distinctions, his teachers decided that he must go to Presidency College in Calcutta to study history. . . .

Balaram listened to them quietly, and they took his silence for acquiescence. But Balaram was not thinking of their Calcutta at all, with its philology and philosophy and history. He had his own vision of Calcutta. For him it was the city in which Ronald Ross discovered the origin of malaria, and Robert Koch, after years of effort, finally isolated the bacillus which causes typhoid. It was the Calcutta in which Jagadish Bose first demonstrated the extraordinarily life-like patterns of stress responses in metals. . . .

Balaram knew of Presidency College, too: it was there that Jagadish Bose had taught two young men—Satyen Bose, who was to appropriate half the universe of elementary particles with the publication of the Bose-Einstein statistics; and Meghnad Saha, whose formulation of the likeness between a star and an atom had laid the foundation of a whole branch of astrophysics.

And of course there was the gigantic figure of C. V. Raman, whose quiet researches in the ramshackle laboratories of the Society for the Advancement of Science, in Calcutta, had led to the discovery of the effect in the molecular scattering of light which eventually came to be named after him.

—From *The Circle of Reason*, a novel by Amitav Ghosh (Viking Penguin)