Progress and Tradition in Medicine

The Therapeutic Perspective. Medical Practice, Knowledge, and Identity in America, 1820–1885. JOHN HARLEY WARNER. Harvard University Press, Cambridge, MA, 1986. xii, 367 pp., illus. $32.50

Scientific changes deeply influence the evolution of both the professional ideals and the daily practice of medicine. Yet the connections rarely attract sustained scrutiny. Many studies of medical professionalization focus on the growth of institutional power while virtually ignoring changes in both science and practice. Others offer one-dimensional and mutually incompatible accounts of the relationship: scientific revolutions either directly produced or merely camouflaged the drive for professional power; professionalization either catalyzed or obstructed scientific progress.

But over the past decade a growing number of historical case studies have demonstrated important, complex links among changes in medical science, actual practice, professional organization, and professional ideology. Drawing upon this new scholarship and on his own voluminous research, John Harley Warner's *The Therapeutic Perspective* provides a remarkably thorough and comprehensive account of these crucial relationships.

The act of prescribing for patients was not just part of the day's work for the 19th-century physician. It was the main source of professional identity and the fundamental professional ethical obligation. The bloodletting lancet was a badge, not just a tool. To be a physician meant to give physic. Changes in established therapies therefore potentially threatened both the self-image and the legitimacy of the medical profession. Under such circumstances, Warner demonstrates, cautious and moderate efforts to mediate between progress and tradition were the hallmark of 19th-century therapeutics. Though scientific theories to explain the efficacy of traditional remedies changed frequently, actual practice altered only gradually and incrementally.

Yet important modifications in practice did take place. The administration of mercury and bloodletting gradually declined. Treatments that relieved pain began to supplant those that inflicted it. And the stage was gradually set for new therapies derived explicitly from laboratory science. Warner also carefully differentiates several often-conflated changes in the purposes for which drugs were prescribed: from depleting the body's energy to stimulating it; from curing disease to palliating symptoms; from restoring the body's natural balance to restoring normal measurements of specific physiologic functions.

Medicine did not simply become more scientific and more professional. Rather, the definitions of what constituted scientific knowledge and professional behavior changed as well. Thus, early 19th-century concepts of medical knowledge demanded remedies that were applicable to all patients and that were logically derived from a theoretical system. By mid-century, a new emphasis on empiricism and particularity had revolutionized medical epistemology, only to be supplanted by a revival of rational universalism a few decades later.

Warner's depiction of the complex dynamics of therapeutic evolution provides a fruitful model for future studies of scientific change, technology diffusion, and professionalization. But *The Therapeutic Perspective* is also the best general overview we have, or are likely to get, of 19th-century physicians in action—how they actually practiced medicine, what they prescribed, when, and why.

The core of this account is a fascinating and detailed comparison of medical practice at two major hospitals, Boston's Massachusetts General and the Commercial Hospital of Cincinnati. Warner examined the treatment records of 3785 patients, approximately 10% of all male patients for whom treatment records are available, from the 1820s to the 1880s. His analysis presents information on the changing use of some 30 different therapeutic agents, from aconite to veratrum viride, with particular attention to bloodletting, mercury, opium, alcohol, quinine, and diet.

The differences between the two hospitals were striking. As 19th-century doctors themselves claimed, patients in Cincinnati were likely to be more frequently and more heavily dosed with calomel and more often bled than were their Boston counterparts. Massachusetts General's use of opiates increased markedly in the 1850s and then fell with the introduction of other pain relievers; while at the Ohio institution, opiate prescription declined sharply and steadily from the 1830s on. Furthermore, Cincinnati doctors used their remedies in an effort to cure while at the Boston hospital the same therapies were intended to be palliative.

These differences, Warner demonstrates, were due in part to the greater professional insecurity of Cincinnati's physicians and their resulting suspicion of therapeutic change. Further, such regional and individual variations in therapy were characteristic of mid-century practice, sanctioned by a shared empiricism that demanded that the therapy be altered to fit the particular patient and environment.

This book is based on a staggering amount of historical research. Warner probably read more 19th-century American medical publications than most 19th-century doctors did. In addition, he mined more than 60 manuscript repositories, for physicians' letters and diaries, as well as student notebooks, M.D. doctoral theses, and other, less obvious sources. The truly national scope of this research is an invaluable corrective to medical historians' usual focus on a few elite northeastern institutions. Even with 66 pages of references, much of the secondary literature and statistical background could only be cited by referring the reader to the author's dissertation, on which this book is based.

The Therapeutic Perspective demonstrates the importance of sensitivity to the varied and fluid meanings of 19th-century medical language. Warner's dissection of "rational" and "empirical" is the most lucid historical explanation I have seen of these seemingly protean concepts.

However, I have a few misgivings about his choice of the term "specificity" to describe therapies tailored to fit each specific patient and environment. The term is potentially confusing, because he also adopts the common 19th-century usage of "specific" to mean a drug targeted to fight a specific disease. The unwary reader who does not figure out that the "principle of specificity" directly opposed the use of "specific therapies" may have a problem following one of the book's central themes.

Warner convincingly establishes the patient-specific variability of mid-century therapy as a central dogma of mid-century professionalism. But lumping all such variations under the single heading of "specificity" blurs the distinction between particularity and individualism; between those 19th-century doctors who rejected French therapeutic statistics because they applied only to Frenchmen and those who rejected all statistics because "no two cases are ever identical." Prior to the 1850s, doctors preoccupied with dismantling the universal systems of Benjamin Rush and his contemporaries could afford to overlook this distinction, but by mid-century the difference was significant.

The patient-specific variations in therapy insisted upon by mid-century physicians both reflected and reinforced tensions be-

tween individualism and uniformity in American culture, including racial, sexual, sectional, and intellectual conflicts. Warner briefly discusses several of these larger themes. But, perhaps in reaction against the kind of social reductionism that would portray therapeutic discrimination as nothing but the medical reflection of social prejudices, he takes pains to emphasize that such variations had their roots in the internal dynamics of the medical profession. The point is important and correct, but the emphasis placed on it minimizes significant links of medicine with other professions and with larger cultural forces.

Combining a prodigiously researched and thoroughly fascinating depiction of actual 19th-century therapy with a sophisticated and widely applicable model of scientific change, *The Therapeutic Perspective* is a superb book, likely to become a classic in the literature of medical history.

MARTIN S. PERNICK
Department of History, University of Michigan, Ann Arbor, MI 48109

Records of the Maya

The Murals of Bonampak. MARY ELLEN MILLER. Princeton University Press, Princeton, NJ, 1986. xviii, 176 pp., illus., + plates. $67.50.

In *The Murals of Bonampak* Mary Miller has been forced to study these deteriorating Maya wall paintings almost as if they were a lost monument. Located on the interior walls of the three rooms of Structure 1 at Bonampak, Chiapas, Mexico, the paintings were found in May 1946, and Miller details both the sensational international attention they initially attracted and their subsequent ruin as final responsibility for their preservation was taken by no single agency, and as tourism proved destructive. The murals are now covered with an opaque calcified coating resulting from a millennium of seepage through the structure's limestone walls and vaults, and in order to see them copyists made this coating transparent by soaking it with kerosene or water. The murals have been copied four times and photographed extensively. Miller's art-historical study is based on these copies and photographs and is thus generally confined to iconographic and formal (or compositional) analysis, rather than including discussion of variations in painterly style, technique, or pigments. (Miller was apparently unaware of the existence of a superb set of color transparencies available through the Instituto Latinoamericano de la Communicacion Educativa of Unesco; these are probably the ones taken by Hans Ritter that she describes as lost.)

The first and most ambitious study of these murals was published by the Carnegie Institution of Washington in 1955; here the eminent Mayanist J. Eric S. Thompson discussed the subject matter of the murals. Since Miller's work is her dissertation, it is not surprising that it is revisionist and critical of both Thompson and the Carnegie Institution of Washington. Foremost is Miller's objection to Thompson's belief that the Maya were not very warlike and that the spectacular battle depicted in Room 2 at Bonampak was a raid for captives, rather than war (p. 96). After refuting Thompson's analysis Miller nevertheless concludes her description of this engagement by arguing that the capture of prisoners was its goal (p. 111). More important than such quibbles over terminology is Miller's innovative conclusion (based on the research of Floyd Lounsbury) that the date of this battle was determined by the heliacal rise of Venus and that the paintings on the north wall of Room 2 are both compositionally and symbolically the equivalent of the glyph known as "shell/star" that signifies war.

Miller has convincingly settled the disputed reading order of the paintings in the three rooms and of the walls within the rooms. She describes Structure 1 as a monument erected to glorify the reign of the Bonampak ruler Chaan-Muan, at the end of the eighth century A.D., and she identifies him in Rooms 1 and 3 in association with the presentation of an heir and in Room 2 participating in and presiding over the capture, torture, and display of prisoners.

The inscriptions in these paintings should help resolve lingering questions about the interpretation of these scenes; there is a single long one with a date, and many captions identify participants. Miller devotes a valuable separate chapter to recording and discussing these inscriptions, but because of poor preservation and the less familiar cursive style they provide frustratingly little hard information, and it is unfortunate that they are not brought together with the discussion of the figures that they identify in the next three chapters. Here Miller has undertaken the staggering task of numbering, describing minutely, and discussing over 300 figures, although key details of her description are often invisible in the illustrations provided. The comparative iconographic discussion is magnificent, and archeologists are served with a banquet of Maya material culture in all the objects illustrated in these paintings. For instance, processions of musicians are included in Rooms 1 and 3, and Miller analyzes the Maya ritual band, its requisite rattles, drums, trumpets, and their invariable marching order; and one of her most original contributions is the analysis of all the textile and hide clothing worn, and of its techniques of design and construction, with an estimate that 600 yards of cloth is worn in Room 1 alone. *Murals of Bonampak* excels in the richness of its historic and iconographic analysis and in its evocation of the meaning, the sights, and the sounds of Classic Maya dynastic ritual and display.

CLEMENCY CHASE COGGINS
Peabody Museum, Harvard University, Cambridge, MA 02138

Fluid Mechanics

Wave Interactions and Fluid Flows. ALEX D. D. CRAIK. Cambridge University Press, New York, 1986. xii, 322 pp., illus. $59.50. Cambridge Monographs on Mechanics and Applied Mathematics.

The theory of wave interactions was first developed about 25 years ago in the context of nonlinear free-surface waves. Now it is widely recognized that nonlinear wave interactions play an important part in a variety of wave and instability phenomena, with applications in geophysical fluid dynamics, meteorology, flow instability and transition, and plasma physics. This book focuses attention on wave interactions in fluid flows and discusses both the general underlying ideas and some applications, dealing primarily with surface waves, internal waves, and shear-flow instability. The book is divided into eight chapters. The main discussion starts in chapter 2, which is devoted to linear concepts and shows how some stratified-flow stability phenomena can be understood in terms of linear wave interactions or mode coupling. Chapters 3 and 4 discuss the nonlinear interaction between a finite-amplitude wave train and an underlying mean flow, including the generalized mean Lagrangian approach and the conservation of wave action. Particular examples from free-surface and internal waves, including the Craik-Leibovich theory of Langmuir circulations, are mentioned. Chapter 5 deals with resonant triad interactions, the first problem to be tackled in the early '60s, which provided incentive for further research in the area of nonlinear interactions. The basic theory of conservative and nonconservative resonant triads is discussed together with more recent applications on long-short wave interactions and shear-flow instability. Chapter 6 is devoted to the evolution of nonlinear wave packets; particular emphasis is placed on the most important equations in this