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Book Review The Private Science of Louis Pasteur By Gerald L. Geison. 378 pp., illustrated. Princeton, N.J

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but the most likely explanation involves a “home-court advantage” — a phrase used in sports to account for the fact that teams are more likely to win when playing in their home arena or stadium. This advantage appears to be related to increased support from fans, familiarity with the surroundings, the minimal amount of travel time involved, and certain other intangibles. As any Los Angeles Lakers fan can attest, the Boston Celtics seem to gain an advantage (or at least used to) when playing in the Boston Garden, an advantage often attributed to the leprechaun living on the basket’s rim. This intangible home-court advantage is not unique to the Celtics or even to sports teams. The superior ability of MGH-affiliated physicians to arrive at the correct diagnosis in the CPC perhaps derives from the fact that the discussants are on their home turf. Discussants from other Harvard-affiliated institutions performed slightly better than physicians not affiliated with Harvard, possibly because of their proximity to MGH.

There are other possible reasons for the observed differences. First, they could have been due to chance, though this appears unlikely given the very low P values. Second, they may have resulted from observer bias. This potential bias was addressed by having one reviewer who was blinded to the discussant’s affiliation score the CPCs. There was no significant difference in scores between blinded and nonblinded reviewers, reducing the likelihood of observer bias. Third, organizers of the CPCs at MGH may be more aware of the exact areas of expertise of MGH physicians, thereby leading to a more favorable matching of the case with the discussant. Fourth, MGH specialists may hear about cases during informal discussions with members of the house staff, fellows, and colleagues. Finally, could it be possible that, like the teams chosen to play against the Harlem Globetrotters in exhibition games, the non-

MGH discussants are purposely selected because they are second rate? (This we doubt.) Regardless of the differences, however, the value of the CPC lies in its in-depth analysis and discussion and not in the accuracy of the discussants’ diagnoses.

In conclusion, discussants affiliated with Harvard performed better than physicians from other medical schools in making the correct diagnosis in the Case Records of the Massachusetts General Hospital. This difference was largely due to the very high success rate of the physicians from MGH. The reason for these differences is unclear, but a home-court advantage for the discussants from the MGH may be a major factor. Though the Celtics will soon be changing arenas, the CPC will continue to be held on MGH’s home turf, which may increase the challenge for discussants not affiliated with that hospital.

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BOOK REVIEWS

THE PRIVATE SCIENCE OF LOUIS PASTEUR

By Gerald L. Geison. 378 pp., illustrated. Princeton, N.J., Princeton University Press, 1995. \$29.95. ISBN 0-691-03442-7.

The publication of this fascinating biography marks the 100th anniversary of the death of Louis Pasteur on September 28, 1895. Previous accounts of Pasteur’s life and work have stressed the heroic stature of the man and the grandeur of his scientific contributions. Geison’s biography is dramatically iconoclastic. The Pasteur who emerges from these pages is a creative, even brilliant, scientist but a distinctly unattractive human being.

Geison, a professor of history at Princeton University, has been studying Pasteur for over 20 years. This long-awaited work is not a casual account penned in time for the centenary celebrations; it is grounded in a vast collection of manuscript material at the Bibliothèque Nationale in Paris, including an extraordinary collection of Pasteur’s private laboratory notebooks. Geison uses these notebooks, correspondence, and other unpublished material to reconstruct the actual process

of Pasteur’s research — full of false starts and intellectual twists and turns, in contrast to the clean, coherent, and rational versions presented in public and published in contemporary scientific journals. In the process, he provides a far more interesting and generally persuasive view of Pasteur’s work than the earlier, more flattering accounts.

Geison’s Pasteur is “an artist of the invisible world,” single-mindedly dedicated to his research. He moves easily from one specialized scientific field to another and displays an awesome capacity for hard work, much experimental ingenuity, meticulous attention to detail, enormous self-confidence, and a passionate desire to succeed. He is also arrogant, ambitious, manipulative, opportunistic, and downright dishonest when it serves his interests and his science. At times, Geison seems to emphasize the negative, selecting the most unfavorable interpretation of Pasteur’s actions when a kinder view may also be plausible. But the details add up to a compelling and consistent image of a man driven by his desire and ambition to acquire the resources needed for research and to be recognized in Parisian scientific circles, applauded by his contemporaries, and honored by posterity. In the pursuit of success, he abandoned an old friend who seemed a po-

litical liability, cultivated influential and powerful new supporters, and married to social advantage.

All this may perhaps be forgiven or at least considered irrelevant to his scientific accomplishments. But Pasteur also presented his results in such a way that, if he did not deliberately mislead, he certainly allowed others to make incorrect assumptions about his experimental procedures and results. Geison follows Pasteur closely through his work on optical isomers, his association of fermentation and life, his denunciation of spontaneous generation, his race to develop the anthrax vaccine, and his testing of the first rabies vaccine on human subjects. He finds that Pasteur's success depended not solely on his scientific talents but also on his rhetorical skills and his willingness to conceal any inconvenient details of his research. In some cases, Pasteur's behavior may be termed showmanship, but in others it clearly amounted to deception. When he first used his much-heralded rabies vaccine on children, for example, he had never tested vaccines prepared by the same method on animals, yet he gave the impression that the vaccine had been thoroughly tested and might reasonably be believed to be safe. Some of Pasteur's less successful experiments with rabies vaccine in humans were never reported; he only publicized his work when confident of positive results.

What conclusions should we draw from this alarming perspective on one of the most heroic figures, and one of the most heroic incidents, in the history of science? For historians, scientific research is not an abstract activity but a social product of its time, necessarily conducted within a particular historical, political, and economic context. Pasteur had the qualities needed for success in 19th-century Paris; a sweeter, gentler soul might have been unable to command the resources for such extensive research, much less to win the national and international stature that Pasteur enjoyed. Perhaps overweening ambition, a flair for public relations, and obsessive dedication were necessary qualities to attain such eminence. Today, a talent for institutional politics, managerial ability, and grant-writing skills are among the newer requirements for scientific success.

Geison's controversial but stunning biography raises many important questions about the nature of science, past and present. Representing some of the newer interpretive trends in the history of science and medicine, it requires us to re-evaluate our heroes and consider the complexities of science as it is actually created instead of merely clinging to comforting and heroic myths.

Elegantly written, beautifully produced, and very reasonably priced, this book also includes an interesting selection of photographs, a fine index, and an extensive bibliography.

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META MEDICAL ETHICS: THE PHILOSOPHICAL FOUNDATIONS OF BIOETHICS

(Boston Studies in the Philosophy of Science. Vol. 171.) Edited by Michael A. Grodin. 205 pp. Boston, Kluwer Academic, 1995. \$59.50. ISBN 0-7923-3344-6.

Interest in medical ethics springs from many sources, and each interest group brings to the discussion of ethics its own perspective and agenda and, in some cases, its own language or jargon. Defining the foundations or essential concepts of

medical ethics is therefore an appealing way to find a common ground for communication and understanding, and could also lead to a more peaceful civil life. Philosophy, at least since the days of Kant's classic work on the metaphysics of morals, has been the discipline traditionally assigned the task of clarifying the foundations and establishing the common ground.

The title of this collection of papers and commentaries puts it in the tradition of defining foundations. But only two of the six major papers are directed at underlying philosophical issues, and only 2 of the 13 authors are primarily philosophers. Other papers examine interactions between bioethics and the law, a religious version of communitarianism, literature, and feminism. In each case the foundational issues are not so much conceptual building blocks as they are issues that arise when medical practice intersects with other social programs and needs. The content of this book therefore suggests a turn in medical ethics from thinking about philosophical foundations in the classic sense to thinking about the structure of medicine and the structure of the society in which it must be practiced. Allen Speight's final commentary recites the main objection to the tradition of foundationalism in ethics: it fails to specify a set of concrete duties sufficient for action. What is needed by people who want to take ethics seriously in practice is a clearer description of the intermediary principles discussed in Raymond Devettere's essay, along with concrete cases showing how they can be applied.

Three of the papers in this collection are excellent examples of the new kind of foundationalism. George Annas describes the interaction between the law and bioethics and argues that improvements in self-determination by patients came about only through the efforts of lawyers and national commissions. Meaningful informed consent has received little contribution from the medical profession. Annas contends that ethics committees, established by medical professionals to enhance patients' self-determination, exist only to make it possible for physicians to do what they want to patients. Although this criticism is clearly hyperbolic — and John Paris's commentary shows how Annas himself finds the law (the courts) inadequate in making ethical decisions — Annas challenges medicine to display moral courage and assume a fiduciary (and in some cases subversive) role by defending patients' rights.

Margaret Farley's excellent paper on the feminist critique of bioethics is a clear demonstration of how the feminist perspective can inform medical ethics. Farley begins with an overview of versions of feminism and tells how feminists focus on the experience of women rather than on abstract reasoning. She then summarizes some of the current data on the influence of sex on physicians and patients. The most interesting part of her article, however, is the description of two core feminist notions, relationality and embodiment, and how they apply to medical practice. Both ideas go beyond sex and raise important issues for medical practice in general.

Martha Montello summarizes the current state of knowledge regarding the use of narrative in medical ethics. This field promises to open new avenues in education and training. Applying the skills honed by a critical reading of narratives to actual cases may help physicians learn to respond with compassion and acquire more of the dialectical skills needed to work out effective moral strategies. Competence in interpretation may avert having to resort to the minimalist legal and economic incentives described in Annas's paper.

There is a lot in this small book, but not much of it is pure philosophy. The two explicitly philosophical papers are less informative than the others. This turn in medical ethics from

philosophical foundations to social and legal critique is reminiscent of the critical-legal-studies movement in the law.

There is a great deal to be learned from the careful study of the social, cultural, political, and economic environment in which medicine is practiced. The range of topics covered in this book may also reflect the maturation of medical ethics as a field that no longer needs to be introspective and defensive. Instead, medical ethics needs to become an effective force in medical decisions and actions. In the case of ethics, as several authors in this book point out, descriptive studies will never provide clear prescriptions for action. We still need universal ethical principles. But without the kind of social critique provided here, we will be voicing empty slogans rather than undertaking informative studies or forming ethical patterns of practice.

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SOCIETY'S CHOICES: SOCIAL AND ETHICAL DECISION MAKING IN BIOMEDICINE

Edited by Ruth Ellen Bulger, Elizabeth Meyer Bobby, and Harvey V. Fineberg. 541 pp. Washington, D.C., National Academy Press, 1995. \$59.95. ISBN 0-309-05132-0.

Since the demise of the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research in March of 1983, a strange fate has attended efforts to constitute a similar body. Congress, or the President, or both are continually on record expressing their desire for such institutions; legislation has been passed to create them; and yet nothing — or essentially nothing — ever seems to come of it. Currently there is talk of a new Ethics Advisory Board in the Department of Health and Human Services, as well as interest in a National Bioethics Advisory Commission, which has been favored by the President. But "interest" is apparently where it remains.

Society's Choices speaks, if a bit obliquely, to this curious situation. The book presents itself as a response to the lamentable lack of "systematic study of the various collective processes through which we subject . . . ethical and social issues to debate and analysis" — that is to say, hospital ethics committees and institutional review boards, the ethics activities of professional associations and ethics centers, and grass-roots organizations. The book is the precipitate of an Institute of Medicine committee charged with analyzing the nation's ability to respond to the ethical dimensions of developments in the life sciences and biotechnology and with issuing recommendations based on its findings.

Although all the "collective processes" for bioethical discussion are at least lightly touched on in this book of over 500 pages, its predominant concern is overwhelmingly with

the prospects for further efforts at the national level. And the chief conclusion would seem to be that we should be bullish on bioethics: the book recommends that both a bioethics body at the level of the Department of Health and Human Services and a "supra-agency" group be established. Much of the analysis in this book is devoted to increasing the chances that any such new committees will be able to put together a record of achievement that will match or exceed that of the President's Commission.

Granted both this report's positive view about ethics commissions and that the likelihood that such a body will be constituted are realistic, this focus is surely reasonable, as are (typically) the arguments, analyses, and recommendations of the distinguished group that engaged in this study. The book might have been even more interesting had the inquiry into the social processes by which we configure, deliberate, and decide about bioethical problems been as general as the preamble might have led one to expect. What constitutes successful functioning in a hospital ethics committee, and whether such bodies ought to step beyond hospital walls to touch off grass-roots deliberation, might actually be more important issues in the long run. And it is at least arguable that organizations such as the Kennedy Institute of Ethics and the Hastings Center have had an impact on social discourse on these matters that rivals that of the President's Commission; what occurs in academic and private research settings might have a greater influence on the present and future character of public debate over ethical and political issues surrounding medicine than national commissions do.

Still, it is uncharitable to complain about what a book leaves undone, when it does well what it takes up. In addition to its careful discussion of the technical, historical, institutional, and cultural contexts that lead up to its own recommendations, *Society's Choices* includes 12 background papers by well-regarded scholars. These papers — extending from moral epistemology to a comparison of French and U.S. national commissions — do a nice job of conveying the rich range of issues involved in trying to get a better grasp on how a society like ours can grapple publicly and thoughtfully with the moral problems of health care and biotechnology. The papers are clear and authoritative and include some standout essays — such as those by Ron Bayer and Baruch Brody, to name only two.

What is most impressive about *Society's Choices* is that it represents a thoughtful effort by an increasingly important part of our intellectual culture — the bioethics community — to reflect on itself, particularly on its engagement with political culture. Self-scrutiny of this sort is important and too rare. The more it goes on, the more both bioethics and society will benefit.

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