

BOOK REVIEWS

Remanent Monasticism

A World without Women. The Christian Clerical Culture of Western Science. DAVID F. NOBLE. Knopf, New York, 1992. xviii, 331 pp. \$25.

I suspect many readers will have the same reaction that I did to the intriguing dust jacket of this equally intriguing book. The front shows a naked male figure (with the requisite fig leaf) in a pristine forest setting. Next to him is a dark area, empty save for a small branch and a leaf suspended in mid-air. The latter struck me as odd, but I gave it no further thought. It was only after I read the credit to Kathy Grove for her retouched photograph and looked at the back cover, where Dürer's original "Adam and Eve" is reproduced, that I realized the *trompe l'oeil*. My first impression of the "womanless world" of the front cover was that it was normal.

That such a simple visual trick could have misled someone who has herself spent more than a decade researching women's place in the history of science and medicine underscores how much we have needed someone to articulate the simple observation with which David Noble begins his book: that the absence of women from the world of science has been so pervasive historically that it "has been taken as a given, something to be overcome, perhaps, but never really explained." Unlike other recent books that have explored the history of women in science by examining the forgotten achievements and struggles of the female scientists who *have* existed, Noble places emphasis not on the exception but on the rule, arguing that the scientific culture of Western science "has not simply excluded women, it has been defined in defiance of women and in their absence." The profoundly masculine character of modern science is thus not an accident, a mere manifestation of the sexism of the rest of society. Rather, it is historically contingent, a manifestation of peculiar historical developments. It is not "natural," nor, Noble stresses, was it inevitable.

Science is not merely masculine, in Noble's opinion, it is monastic. And it is in the male monasteries of medieval Europe that Noble seeks to find the origin of science's "world without women." More

than half of Noble's book is devoted to the development of Western Christian monasticism in the early Middle Ages and, in the later Middle Ages, of the equally celibate masculine world of the universities. At a very early stage in its development, Western Christianity focused on sexuality in a way unparalleled by most other religions. Religious heterodoxy became associated with the public commingling of men and women, and sexual licentiousness was a common accusation with which to dismiss religious movements labeled by their opponents as heretical. Orthodoxy, then, came to be defined around the rejection of sexuality while heresy was correlated to the proximity of women; for the male ecclesiastics who established control, women came to be sources of distrust, resentment, and outright fear. Hence the flight from women, first into the desert and later into the new autonomous and exclusive masculine world of the monastery. In the 11th century, universal male clerical celibacy, which had up to that point been only moderately enforced, became one of the two chief objectives of a new reform movement. In the 12th century, a new institution, the university, came into existence; unlike the male monasteries, it had no female counterparts. Rather, it was an absolute "world without women," an enclave of masculinity as exclusive as any military organization.

The rest of Noble's book chronicles the survival of clerical elements in the post-medieval world, where, Noble asserts, science remains an expression of Christian devotion. Although clerical celibacy was one of the first casualties of the Protestant Reformation, Noble argues that the masculine seclusion of the cloister remained a defining characteristic of both informal and formal scientific associations throughout the Scientific Revolution and beyond. Noble sees the trend toward greater sexual equality in 19th-century America as motivated by a return to the positive values of the early church.

Noble, who is to be congratulated for his exceptionally fine command of a huge body of historical literature, offers many persuasive arguments for this radically new look at the development of Western science. It is only in light of his arguments that one sees the significance of the long

ban, which extended up through the 19th century, that forbade dons at Oxford and Cambridge from marrying. And Noble's litany of great English scientists who never married (whether or not they belonged to the universities) is indeed amazing.

But Noble's arguments often seem overdetermined. Once he has identified male clerical celibacy as the culprit for the masculine nature of Western science, it becomes a Procrustean bed onto which he must force all the history of Western science. Italian university professors, who unlike their Parisian and English colleagues were often married laymen, have to be awkwardly explained away. So do other scientists who are not celibate; William Harvey, for example, is introduced by the terse assertion that "though married, [he] held women in low regard." Noble takes the 16th-century iconoclast Paracelsus as a model of anticlericalism and antiuniversity sentiment. Yet even as Paracelsus claims to seek out peasant women (among others) for information on herbs and natural remedies, he is as profound in his misogyny as any of his contemporaries ensconced in the masculine isolation of the universities.

Woven into Noble's analysis are unarticulated assumptions about sexuality. Noble never clearly explains that celibacy has only recently become synonymous with sexual continence. He seems eager enough to identify instances of homosexuality when he finds them, implying that the only sexual options were other men or nothing. Yet studies of medieval female prostitution show that the most regular clientele was university students. Noble's general thesis implies that if male scientists had been married and heterosexual, the position of women in science would have been very different. The "company of women" is of course a necessary precondition to intellectual exchange between the sexes, but it is hardly any guarantee of it.

When we look at the other two great civilizations adjacent to the Middle Ages in time and space—Greco-Roman Antiquity and the medieval Muslim world—we find exactly the same exclusion of women that characterizes Western science. Neither ancient Greco-Roman society nor medieval Islam had monks or celibate priesthoods. Yet their exclusion of women from science was just as absolute. The odd exception like the late antique mathematician Hypatia no more modifies the conclusion that ancient science was fundamentally masculine than do such later female scientists as Emilie du Châtelet or Maria Winkelmann. Hypatia, like her later sisters, could actualize her scientific interests and aspirations only because a male (in her case, her father) gave her a private door of entry. Noble is cer-

tainly correct in stressing that the masculine character of Western science cannot be attributed to simple continuity with Antiquity (or, he might also have noted, medieval Muslim society). But in fact, the more we acknowledge that the three cultures were distinct, the more we are faced with the realization that women's exclusion from science must have some deeper cause.

This does not mean that we should revert to thinking that the "world without women" is natural. It does mean that we need a more comprehensive analysis of how the construction of gender functions in the realm of intellectual life. Why is it that the greater the percentage of women's participation in a given intellectual sphere, the more the general prestige of the sphere declines? Why is it that women's intellectual capabilities have, until recently, been so ignored and underdeveloped? To the question "what is women's education for?" most societies have answered "nothing." The most famous medieval female intellectuals—such as the playwright Hroswitha or the cosmologist, visionary, and medical writer Hildegard—were products not of the early and exceptional double (that is, "coed") monasteries that Noble praises but of that "world without men," the single-sex female nunneries. Even when women were educated, their curricula were often structured on a belief in women's lesser intellectual capabilities. When science worked its way into the curricula of the 19th-century American women's colleges, it did so largely because it was seen as a suitable substitute for the classical languages, Greek and Latin, which were the foundation of male education but which women were thought too intellectually limited to handle.

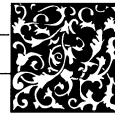
On second thought, maybe Noble's visual trick on the cover is not a *trompe l'oeil* after all. In a way, it is Dürer's original and its suggestion that there ever was a time of genuine equality between men and women that seems so odd.

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Mentalist Imputations

Animal Minds. DONALD R. GRIFFIN. University of Chicago Press, Chicago, 1992. x, 310 pp. \$24.95.

This is an interesting and infuriating book. It is interesting because Griffin has selected the best new stories about animal cognition and has told them well. He has also made a



Vignette: Flights of Fancy

The content of much human consciousness does not conform to objective reality. Fear of ghosts and monsters is very basic and widespread in our species. . . . Yet when we speculate about animal thoughts, we tend to assume that they must necessarily be confined to practical down-to-earth matters, such as how to get food or escape predators. We usually suppose that animal thinking must be a simpler version of our own thinking about the animal's situation.

But there is really no reason to assume that animal thoughts are rigorously realistic. Apes and porpoises often seem playful, mischievous, and fickle, and anything but businesslike, practical, and objective. Insofar as animals think and feel, they may fear imaginary predators, imagine unrealistically delicious foods, or think about objects and events that do not actually exist in the real world around them.

—Donald R. Griffin, in *Animal Minds*

sincere attempt to characterize evenhandedly the philosophical and theoretical minefield of animal consciousness he has so boldly entered. Griffin is a thorough scholar, a passionate writer, and one of the greatest admirers the animal kingdom has ever had. His book is also infuriating, however, because, as in his other books on the same topic (*The Question of Animal Awareness* and *Animal Thinking*), he simply does not grasp why most behavioral scientists have not joined him in making the study of animal awareness a research priority. The unfortunate result is that the tone of book is often impatient, even snide, when describing the attitude of the scientists who collected the data he presents.

The main thrust of Griffin's argument is that the legacy of strident radical behaviorism causes contemporary behavioral scientists to dismiss the idea that consciousness may exist in non-human animals. He argues that such dismissal jeopardizes our full understanding of animal behavior and cognition because conscious processes play a significant role in the functioning of all minds, human or not. In support of this claim, Griffin describes an enormous variety of fancy and flexible behaviors displayed by animals while searching for food, building nests and homes, using tools, communicating with others, or performing contrived laboratory tasks. These descriptions are accurate accounts of state-of-the-art studies in animal behavior, written at a level appropriate for advanced undergraduates and lay people with some knowledge of biology. Griffin has supplemented the more typical topics of the bee waggle dance and ape "language" with more unusual stories about beaver architecture (a full nine pages), bowerbirds (who build elaborate courtship

platforms), and concept-learning in pigeons. His goal is not, however, simply to entertain and impress the reader; the intellectual stakes are considerably higher. Several times during each chapter, Griffin claims that the versatile behaviors documented for many species suggest strongly some "simple conscious thinking" and that only stubborn scientists bound by behaviorist dogma could believe otherwise.

It is, however, the legacy of the hypothetico-deductive method, not that of behaviorism, that leaves the muddy waters of animal consciousness uncharted. Each of Griffin's examples may indeed suggest conscious thinking, but none establish it. More important, Griffin is unable to specify what sort of data would support the hypothesis of animal consciousness. He indicates that studies of animal communication are likely to be most fruitful, but he does not indicate how. What questions do we ask of dolphins and crows and bees? And how do we ask them? The problem with the hypothesis of animal consciousness is not that behavioral scientists are uninterested in it or prejudiced against it. We have simply not thought of a way to test it. It is not, as Griffin claims, that students of animal behavior are unwilling to develop theories that include hypothetical constructs. There is not a widespread aversion to the idea of mentality; the entire field of animal cognition attests to that. It is in distinguishing empirically between mental events and mental experiences that we run aground. Griffin offers the alternatives of viewing animals either as genetically preprogrammed, inflexible, sleepwalking automata or as thoughtful, emotional, rational, conscious creatures. This is a false dichotomy that unnecessarily polarizes the argument. To be without consciousness is not to