

N.B. This is a *final draft* only.

- Review of Michel Jouviet, *The Paradox of Sleep: the story of dreaming*. Translated by Laurence Garey. Cambridge, MA: MIT Press, 1999. xiii + 211 pp.

Patricia Cox Miller, *Dreams in Late Antiquity: studies in the imagination of a culture*. Princeton, NJ: Princeton University Press, 1998 (first paper edition); 1994 (originally published). xii + 273 pp., forthcoming in *Journal of the History of the Neurosciences*.

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"It is not up to the neurobiologist", confesses Michel Jouviet, one of the pioneers of research on paradoxical sleep since the 1950s, "to retrace the history of dreaming". Yet, like J. Allan Hobson, Peretz Lavie, and other great dream scientists of the late 20th century, Jouviet delights in historical evidence and anecdote, from Cro-Magnon depictions of erection in sleep to the great 19th-century dream journals. There is so little theoretical consensus in our dream sciences - Jouviet laments heroically the 'very strange stature' of the 'hypno-oneirologist' in neuroscience - that it might seem perverse to multiply the difficulty of the subject by trying to deal with the history of dreams and the science of dreams at once. What can possibly be gained, either historically or scientifically, by trying to do both?

Yet the influence of culture on dream *reports* at least is uncontroversial. The greatest, unique difficulty in dream science is in finding more secure ways to make inferences from dream reports to dream experiences. So studying changing historical patterns of dream reporting *might* help us approach the dream scientists' objectivist ideal of being able to cancel out influences of genre, theory, and cultural norm, and reach the pure dream itself. And since, increasingly, content analysis of dream narratives within cognitive psychology requires sophisticated interpretive techniques, we can't rest easy with a simple two-cultures disciplinary divide, according to which historians and anthropologists would merely describe the various roles ascribed to dreams in changing social contexts, while scientists would seek genuine causal explanation in uncovering the true mechanisms of dreaming. Indeed, historians might take courage from the glaringly pre-paradigmatic state of the neuropsychology of dreams (which don't, for example, get a single mention in the excellent 1998 Blackwell *Companion to Cognitive Science*). With deep disagreements among current scientists like Hobson, David Foulkes, and Mark Solms on the most basic formulations of research questions and on method, might not historical and comparative accounts offer some indirect help in sociologizing or denaturalizing our categories? Disputes within our technical and insulated current natural sciences might be understood, *and pursued*, by reference to the kind of multicausal framework traditionally offered by the best human science accounts.

The greatest obstacles to such wild and whirling interdisciplinary programs may be more professional than conceptual, more to do with the limitations of our educational resources in fostering multidisciplinary expertise than with any inevitable disjunction in subject matter. As Jouviet complains, even before we wish for historically-sensitive dream scientists, there are few enough old professors left to teach 'the integrated physiology of sleeping and waking', rather than specialized knowledge in molecular biology, pharmacology, or sleep medicine. So the two books under review in fact, sadly, have little in common beyond the words 'sleep' and 'dream'.

Patricia Cox Miller's *Dreams in Late Antiquity* was motivated by the author's puzzlement at what early Christians meant in claiming that they have seen God through dreams. Her book describes and defends ancient anticipations of what she calls 'imaginal theology', figural thinking in which images give tangibility to our sense of what really matters. Of possible historical approaches to

dream theories and practices, then, this is not one with any particular appeal to historians of neuroscience.

Miller designs her only chapter on theories of dreams around a disconcertingly sharp distinction between psychobiological and theological theories. Naturalistic approaches after Aristotle sought to understand phenomenological confusion in dreams by reference to confused or roiling eddies of internal fluids, and thus linked dreaming to digestion. Miller's treatment of such explanations "according to the tenets of scientific empiricism" in Cicero and others is rather cursory, for her sympathies lie with what she takes to be an "opposed" preference for "meaningful dreams". Stoic fatalists saw dreams as signs, connections to an already configured future, offering foreknowledge in half-dreamed changes. But Miller's synthesis of scholarship on this "nightly screening of the gods" neglects the extent to which ancient dreamers assumed that the gods specifically work *through* the body, with physiological and religious speculation often taken to be mutually supporting. So when Gregory of Nyssa invokes *sympatheia* as a principle linking divine and bodily causes of dreams, for example, Miller decries his 'uneven dream theory' for 'jumping back and forth between opposed theories of psychobiological causation and divine inspiration'.

Miller offers us lovely material on the place of dream therapies in what Betz has called "the unfathomable scramble of energies coming out of the universe", linked with angels, demons, healing drugs, ghosts, and talismans as message-bearers of one kind or another to be tapped by the expert in natural and supernatural symbols. But because Miller takes her ancient subjects to be as wary of ontological commitment as she is, she fails fully to include the history of physiology in this imaginative cosmobiological complex (which would survive and mutate for over a millennium). She takes any account of the mechanism of dreams, ancient or modern, to be inevitably oversimplifying, unable even to address questions about complexity or meaning, and so she finds it strangely surprising that someone like Galen was "apparently cognizant of the interconnection of psychological with physiological conditions".

Miller has little sympathy either for psychoanalytic or for sociocultural historiography of dreams. The second half of her book includes five long case studies of ancient dreamers, primarily Christian, in which she laboriously defends the theological authenticity of their dream narratives against other commentators who hastily psychologize, or seek signs of genre and formula in written dream reports. Most puzzling, perhaps, is Miller's picture of the present. She laments the absence of a contemporary imaginative culture of dreams, noting that "the use of dreams to discern orderly structures in the world and to provoke reorientations in self-understanding may seem strange to us in the late 20th century". There is no reference to the range of dream practices in the modern West, from local dream interpretation groups to the huge, admirably pluralist Association for the Study of Dreams, so Miller is not carefully contrasting shared or public ancient understandings with newly individualistic late modern dreaming. (Indeed, her own early Christian dreamers are engaged in oddly modern projects of private self-transformation). One wouldn't have to engage in a full philosophical anthropology of modern Western dream culture analogous to Tanya Luhrmann's magnificent *Persuasions of the Witch's Craft* to find a much richer comparative portrait of the many dialects of the language of dreams in our own age of anxiety.

Laurence Garey, translator of the series of articles by Michel Jouviet which composed the 1993 French original of *The Paradox of Sleep*, has "taken the opportunity to try to smooth them into an integrated text", and "taken certain liberties in rearranging the contents of the chapters". The results are occasionally frustrating for the historian of modern dream science, with new research from 1996 and 1997 being strangely, and without notice, interpolated into much older articles. But this is still essential reading, marvellous raw material either for the young inquisitive neuroscientists at whom Jouviet officially aims, or for sociologists and psychologists of recent science. Across eight chapters, originally written between the late '70s and early '90s, Jouviet reflects on the impact of his remarkable discovery in 1958 that Rapid Eye Movements reflect a quite different, paradoxical form of sleep, as different in many physiological respects from deep slow-wave sleep as it is from waking.

The informal and compendious style of great scientist talking to the people produces some ripe anecdotes. We hear of the pitfalls of ethno-oneirology: Jouviet's team mapped unusual patterns of

eye movements among the Bassaris in Senegal, running hypotheses about 'genetic reprogramming' in sleep, but were then unceremoniously barred, as dangerous "physical anthropologists", from collecting such data in Lapland. And Jouvét describes plainly how hard it is to lesion all and only the postural atonia neurons in cats, those which normally block muscular movement during paradoxical sleep, so as to observe "oneiric behaviour", lamenting that "the success rate is still relatively low".

Jouvét's popular version of the physiology of paradoxical sleep is more fragmented and less detailed than the comparable picture drawn in Hobson's *The Dreaming Brain* (1988), and less theoretically careful than Owen Flanagan's philosophical *tour-de-force Dreaming Souls* (2000). But he is particularly clear on puzzling problems about metabolism and periodicity, and on physiologically vital ethological research, offering insights into the tremendously difficult comparative understanding of sleep mechanisms in penguins, dolphins, and strange strains of cat.

Despite his own central involvement in both psychopharmacology and neurotransmitter-hunting, Jouvét's theoretical stance is unabashedly pluralist, as he lashes out from on high at molecular biologists "who have absolutely no idea of how the organism functions", or at Artificial Intelligence researchers who can't deal with cerebral plasticity. He regrets the widespread shift of expertise and funding from basic physiological theory to applied sleep medicine. Acknowledging that there are few good ideas around even about which levels are relevant for understanding the functions of sleep and of dreaming, his own investigations are variegated, including content analysis of 2525 of his own dream memories recorded between 1970 and 1978.

Jouvét's theoretical preferences are pragmatic: he seems to side with Hobson against Foulkes in denying that mentation during non-REM sleep is true dreaming, primarily because to do so would be to lose the hope of finding correlations between mental activity and the EEG. So Jouvét holds to the creed that "PGO [ponto-geniculo-occipital] activity is the key to the mystery of dreaming" despite his disarmingly candid admission of the total lack of any theory of mental representation which could ground such a view: as he says, "the almost random volleys of PGO activity are hardly compatible with any attempt at semantics". His own original "unchallengeable and therefore nonscientific" contribution is a genetic twist, by which psychological differences across individuals are maintained by an endogenous repetitive reprogramming in REM sleep, which can wipe out "certain aspects of what we have learned", while reinforcing highly individuated "unconscious reactions that are the basis of personality". We get tantalizingly brief accounts of recent research suggesting that genetically different strains of mice each have a different proprietary sleep pattern, and that patterns of eye movements in identical twins are "similar".

Even though he repeats at length, almost as a matter of professional pride, a loose bunch of Hobson's tired criticisms of Freud, Jouvét reports his vision of a Laboratory of Experimental Psychoanalysis, which would welcome prehistorians and theorists of the affective subconscious along with those equipped to study dream erection in rats. Perhaps we could think of this as a challenge to historians of neuroscience, to write themselves a job description for such a mythical lab, in which study of the history of dreams would be more than a humanistic curiosity wholly divorced from serious scientific inquiry into mind and brain.

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