

Colorless Green Ideas Sleep Furiously

David Foulkes
*Dreaming: A Cognitive-
Psychological Analysis*
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Review by
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David Foulkes, professor of psychiatry (psychology) at the Emory University School of Medicine (Atlanta, Georgia), is author of Children's Dreams: Longitudinal Studies. ■ John F. Kihlstrom is professor of psychology at the University of Wisconsin. Recipient of the American Psychological Association's Award for Early Career Contributions to Psychology in Personality, Kihlstrom is coeditor, with F. J. Evans, of Functional Disorders of Memory and contributor to The Unconscious Reconsidered, K. S. Bowers and D. Meichenbaum (Eds.).

The most amazing thing happened to the psychology of sleep and dreams. Freud's *Interpretation of Dreams*, published in 1900, stimulated a great deal of interest in the mental life of the sleeper—especially among personality and clinical psychologists. But dreams remained purely subjective experiences, accessible only to the dreamer and typically unremembered the morning after. Research on dreams relied on self-reports and was beset with all of the difficulties attendant on that methodology. How did researchers know whether somebody really dreamed? How did they know what really happened in the dream? Dreams were an intriguing part of mental life, but they were also ephemeral, ineffable, wills-o'-the-wisp.

Aserinsky and Kleitman changed all that. In 1953 they reported that particular patterns of electrical activity, recorded from the cerebral cortex, eyes, and skeletal musculature, occurred regularly during sleep and were strongly associated with reports of dreaming. At last, psychologists interested in dreaming had their Holy Grail—an objective, physiological index that could tell us when a person was dreaming, and for how long, if not precisely what the dream was about. Their findings stimulated a burst of research activity on dreams—but only a burst, not a sustained volley. Somehow, or at least so it seems, the psychology of dreams has been displaced by an interest in the biochemistry and neurophysiology

of sleep. We now know a great deal about circadian rhythms; the reticular activating system, pons, and locus coeruleus; neurotransmitter synthesis and growth hormone secretion; sleep deprivation; insomnia; apnea; and narcolepsy. But what about *dreams*? All of the introductory textbooks cite the same classic studies, dating to 30 years ago. And teachers of the introductory course, confronted every semester by the questions of what dreams mean and what purpose they serve, respond with a brief and unenthusiastic account of Freud's theory of the dream as attempted wish fulfillment, shrug their shoulders, and go on to the next question.

There are, of course, exceptions to this biologization of sleep and dreams. Over the years, a number of investigators have remained interested in sleep mentation, and they have produced provocative studies of dreams as well as other mental activities occurring during sleep—hypnagogic and hypnopompic thought and imagery, sleepwalking and sleeptalking, nightmares and night terrors. Chief among these investigators has been David Foulkes, who has stayed the course and over the past few years produced a number of thoughtful and provocative studies of dreams and other aspects of sleep mentation.

The monograph under review summarizes Foulkes's work to date and invites the reader to pursue psychoneirics (from the Greek *oneiric*, designating dreams), the study of mental processing during

dreams. By Foulkes's account, such an enterprise would not only answer our first-year students' favorite questions but would also make a unique contribution to the science of mental life.

Foulkes argues that dreams are mental acts, derived from knowledge stored in memory. Although this may seem like old Freudian hat, it isn't: Foulkes denies that dreams have any meaning or that any intentionality lies behind them. Dreams are *involuntary* mental acts, the nighttime equivalents of those many occasions when, in normal waking life, thoughts and images pop unbidden into consciousness. Dreams are symbolic, in that their contents are mental representations of objects and events that exist (or might exist) in the world outside the mind of the dreamer. But that does not mean that dreams have any *meaning*. In fact, Foulkes shows that attempts to interpret a message from the manifest or latent contents of dreams are fraught with difficulty and impossible to verify empirically.

Foulkes suggests that dreams are instigated by the activation of knowledge structures stored in memory. This activation can have several possible sources: environmental stimulation during sleep, day residues, or persisting personal concerns. In this sense, dreams are representational: Their ideas and images are derived from things the dreamer knows or has experienced. These fragmentary memory structures—a bicycle here, a whale there, an exam—are then organized by syntactic structures analogous (if not identical) to those that organize words into phrases and sentences. Thus, the dreamer is riding on a bicycle toward a whale that is taking an exam. Any other syntactic structure would have served just as well. Perhaps the dreamer is taking an exam, and looks out the window to see a whale riding past on a bicycle.

But whereas deliberate speech acts are referential and meaningful, dreams are not. Individual elements in the dream may have psychological significance for the dreamer. Perhaps she has an upcoming exam or saw a whale during a recent vacation trip or has her eye on a new bicycle. But the dream as a whole has no meaning, any more than do those thoughts and ideas that keep popping into waking consciousness. Dreams are like nonsense sentences, composed of meaningful words strung together with proper syntax but signifying nothing.

Foulkes's monograph presents this theory in some detail, as well as a considerable body of research—most of it Foulkes's own—that stands behind it. The

reader will find here authoritative summaries of research on the similarities and differences between REM and NREM mentation, of dreams in the blind and brain-damaged, of the effects of presleep and intrasleep stimulation on dream content, and of the fate of dreams in memory. In the central chapter of the book, Foulkes presents a longitudinal study of dreaming in children and relates the changes observed in dreaming to the course of cognitive development in general. The point of the study is that dreaming begins when representational thought begins, and the complexity of children's dreams parallel the complexity of their thought and language. This is the way it should be if his theory of dreams is correct.

Foulkes draws on a wide range of sources, dealing with memory and psycholinguistics, cognitive development, and the modularity of mental processes.

The book's style is as refreshing as its content. The reader is often addressed directly, as in the popular press, and in this form the book reads well. More disconcerting, however, is another departure from established traditions in scholarly writing. For some reason, author and publisher adopted the practice of indicating bibliographic citations with superscripted footnotes. This decision creates considerable annoyance for the reader who wants to take this monograph seriously, examine its sources, and run with its ideas. Furthermore, the appearance of reference footnotes at the back of every chapter creates unnecessary redundancy. The lack of a comprehensive bibliography at the end, or even so much as an author index, makes the book extremely difficult to use as a scholarly reference. Still, this is an important and provocative book, and it deserves to be widely read. ■