

Preface

As I am writing this, the 60th anniversary of a pivotal moment in the field of sleep is approaching. For it was in 1953 that Aserinsky and Kleitman discovered REMS in a lab at the University of Chicago. They were surprised to notice that eye movements occurred periodically even when their subject was, by all indicators, completely asleep. Four years later, Bill Dement—then a student of Kleitman—discovered the connection between these eye movements during sleep and dreaming (Dement and Kleitman 1957). These startling observations set in motion a whole new era of interest in the laboratory study of sleep, dreaming, and subsequently sleep disorders. From these pioneering investigations came an explosion of discoveries and surprises, frequently leading to revision and even outright rejection of established notions about sleep, sleeping, dreams, and dreaming.

This explosion of new information continues today. The number of articles in scientific journals about sleep, dreaming, and sleep disorders in the past few decades easily outnumbers all those that preceded them. New journals devoted to sleep and dreams have been born and are thriving. A number of very fine technical books have been published. This book is intended to distill all of this information into a textbook or course supplement suitable for use by students in higher education, but also useful for anyone wanting to know about sleep and dreaming.

I have written this book from several perspectives. One perspective is from the vantage point of a researcher in each of the three areas of sleep, dreaming, and sleep disorders. I have included the results of some of my research in order to show how knowledge about these many facets of sleep has been discovered.

The second perspective is out of my experiences with sleep disorders in sleep disorder centers and more recently my experience doing clinical treatment of sleep problems using behavioral methods. I have included many actual experiences with sleep disorder patients so that students can better understand the problems that sleep disorders present to their sufferers.

Finally, I have written this book from the perspective of my experience as a college professor who has frequently taught courses on sleep, dreaming, and sleep disorders for more than 30 years.

This book is written for college students with no prior knowledge of sleep and related phenomena. At the same time, it is also informative for those students who already have some knowledge in these areas. Most people have a natural

fascination about sleep and dreams. From this starting place I build to an even greater fascination for, as well as increased understanding of, all aspects of sleep and dreams. I have avoided using technical jargon as much as possible unless the terms are critical to understanding the material. At the same time I have tried to avoid overgeneralization and oversimplification. In addition, I have endeavored to involve readers as much as possible by talking about aspects of their own sleep and dreaming; as well as taking them to a sleep laboratory during an all-night recording session; and having them feel like they are present while sleep disorder cases are being reviewed in a sleep disorders clinic.

The organization of the book is designed as a journey. Together readers will travel with me first to a modern sleep laboratory to see the cardinal way that sleep and dreaming is studied. From there I will guide you on a climb through the mountains of information that has accumulated about sleep and dreaming. We will travel on an efficient route through these mountains, pointing out the important and scenic highlights along the way. We start the journey with the twin peaks of what is known about sleep and of what causes us to sleep. Next, we visit the dreams and dreaming mountain. Then we from a vantage point looking back at these mountains of information we have explored, we can contemplate what might be the functions of sleep and dreaming. We conclude our journey by traveling over to the mountain of sleep disorders.

More specifically, after our visit to a sleep lab in [Chapter 1](#), Part I of this book starts with a chapter on the basics of sleep ([Chapter 2](#)) that describes the specific criteria for sleep and its substages as measured in the lab, what a typical night of sleep is like, and how it changes with age. It includes information on sleep in animals. This is followed by [Chapter 3](#) that discusses the need to sleep and sleep as a rhythmic process. [Chapter 4](#) looks at variations from these basics including the effects of sleep loss.

Part II focuses on the brain in sleep and the body in sleep. [Chapter 5](#) presents an overview of the structure, basic chemistry, and functioning of the brain, with an emphasis on those aspects most important for sleeping and dreaming. [Chapter 6](#) discusses how sleep affects the body and how the body affects sleep.

Part III turns to dreams and dreaming. [Chapter 7](#) looks at what is known about the nature and content of dreams. [Chapter 8](#) then focuses our attention on the process of dreaming. In [Chapter 9](#), the key aspects of the major theories about dreaming are summarized and also includes a section summarizing methods of dream interpretation.

Part IV uses what we have learned so far to explore the probable functions of sleep and dreaming. [Chapter 10](#) includes functions of sleep and non-REM sleep. [Chapter 11](#) continues with functions of REM sleep and dreaming.

Finally, Part V brings us to problems people can encounter with their sleep. In [Chapter 13](#) the major types of disorders treated at sleep disorder centers are presented, usually introduced by illustrative case examples that bring the problems to life for the reader. Before that in [Chapter 12](#), we look at other difficulties people may have with sleeping and dreaming.

In the end, I hope that readers will gain increasing fascination with and knowledge about sleep and dreaming from reading this book. I know I have, while writing it.

Fort Collins, CO, October 22, 2012

William H. Moorcroft

P. S. I like to hear from instructors and students who have used this book in a course. For that matter, I also like to hear from any others who may have read it or parts of it. I will try to keep updating the book as new information comes to my awareness and will try to pass it along to those who may be interested. Try contacting me at Bill@sleeplessincolorado.com. Meanwhile, I wish you the best of sleep and pleasant dreams.

References

- Aserinsky, E., & Kleitman, N. (1953). Regularly occurring periods of eye mobility and concomitant phenomena during sleep. *Science*, *118*, 273–274.
- Dement, W., & Kleitman, N. (1957). The relation of eye movements during sleep to dream activity. *Journal of Experimental Psychology*, *53*, 89–97.



<http://www.springer.com/978-1-4614-6466-2>

Understanding Sleep and Dreaming

Moorcroft, W.H.

2013, XIV, 369 p., Hardcover

ISBN: 978-1-4614-6466-2