Drug Dosage
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Preface

The content and context of these papers on sleep, aging and other disorders, presented at the XIII World Congress of Neurology, fit appropriately in the developing history of sleep research. In this preface let me briefly review that history to lend perspective to the content and context of the papers of this volume.

As has been said about my discipline, psychology, sleep research has a long memory but short history. Its memory extends back to the great Greek physician of the sixth century BC, Alecemon, who suggested that sleep was due to a retreat of blood in the veins and awakening was an engorgement. The works of Hippocrates contains a number of references to sleep and he cited clinical applications relative to 'humoral' changes associated with insomnia or excessive sleep. Aristotle devoted a remarkably naturalistic chapter to sleep in his Parva Naturalia.

The research history of sleep parallels the developments of the life sciences in the 1800s. The quickening pace of research on the physiology and neurology of animals and humans brought new and exciting finding about the vascular system, respiration, digestion, secretion, temperature and neurology. Most of these systems had marked changes associated with sleep and sleep often served as a 'bench mark' condition for the measurement of the functional changes. Often these changes were taken as 'causes' of sleep or wakefulness and a plethora of sleep theories emerged. Henri Pieron in his landmark book, Le Probleme Physiologique de Sommeil, in 1913 noted that it was difficult to find an idea on sleep genesis for which there was uncontestable priority. He wryly noted that it would 'be an excellent thing if theoreticians would resort to experimental control'. The pattern relative to sleep research was clear. I have elsewhere described that pattern: 'During the early period there was an overwhelming impression of sleep research as an orphan of uncertain parentage living within a larger
family of powerful aunts and uncles who, occasionally, gave sustenance and attention to the waif.

The emergence of sleep research as a coherent research area can be dated from the late 1950s. Since the late 1930s it had been apparent that the electroencephalogram (EEG) showed systematic changes with and during sleep and could be used to index the ongoing process. Explorations of the correlates of recognizable sleep 'stages' were underway during the 1940s. In 1957 the 'activated' or rapid eye movement (REM) state of sleep was identified by Kleitman and Aserinsky. This 'wake-like' state within sleep was found to be closely associated with dreaming in humans and Jouvet and Morruzi early established it presence in animals. These findings, associated with the ample research funds of the 1960s and the increasing sophistication of neurophysiological research, fueled the research efforts of sleep research in the 1960s. The number of research publications rose rapidly. The annual number of papers in the 1940s was 100, in the late 1960s some 500, by the mid-1970s some 1,500, and in the 1980s approached 2,000. Books, journals and research societies followed to form the sleep research area. As it was in the beginning this effort has remained, perforce, an interdisciplinary one which has drawn its constituents from biochemists, neurologists, physiologists, pediatricians, pharmacologists, psychiatrists, zoologists, engineers and psychologists.

Beginning in the 1980s there has been a significant and important shift in the field. Building on the foundations of research developed across the 1960s and 1970s the field has become increasingly clinically oriented. For example, the annual bibliography of sleep related publications in the mid 1960s found some 24% devoted to neurophysiology and 20% to pharmacology and sleep disturbances. The most recent annual bibliography reports 8% coded as neurophysiology and 39% as pharmacology and sleep disturbances. In the United States a diagnostic classification has been introduced and sleep clinics have proliferated.

Finally, in an area of which I have researched since the mid 1970s - aging and sleep, the numbers of papers since the mid 1960s has increased tenfold.

With this background in mind it is clear that this presentation at the XHIth International Congress of Neurology is appropriate and timely.

Much of the foundations of our understandings of sleep from the early 1800s has been built upon that closely allied disciplinary field of neurology and the work of neurologists. The debt is a substantial one. The field of sleep research has increasingly seen and has begun to translate these findings
into their clinical applications. This volume of papers provides an up
to date statement about some of these developments as they relate to
aging, its interactions with sleep disorders and to selected sleep disorders.
We believe the findings to be provocative and useful.

Wilse B. Webb