

PREFACE

The sleep-wake cycle underlies the life of all animals. It becomes more complex in homeothermic animals with the appearance of paradoxical sleep (PS) in addition to conventional slow wave sleep (SWS). This second stage of sleep owes its name to Pr. Michel Jouvet who in 1959, as a young research worker at the CNRS in Lyon, “accidentally” discovered a new state of the brain in the cat. Paradoxical sleep, which is not a light stage of sleep as first thought by American researchers who called it rapid eye movement sleep (REMS), is characterised by a muscle atonia paradoxically accompanied by cortical activation similar to that occurring during waking. This discovery stimulated Michel Jouvet and his first collaborators to develop a program of research aimed at delineating the neuronal networks responsible for the sleep-wake cycle and its physiological regulation. Employing lesions in the brain, they revealed oneiric-like behaviours occurring with PS following destruction of a system responsible for muscle atonia, and thus documented the



Photography of the chairman and speakers.

occurrence of stereotyped motor behaviour patterns during dreaming in the cat. They also revealed the ontogenetic and phylogenetic evolution of PS. Michel Jouvet also developed an integral theory of the regulation of sleep-wake states by the monoaminergic systems, summarized in a famous review of 1972, which continues to be cited today. Although revised and refined over many years, this theory identifies the monoaminergic neurons as being among the prime systems responsible for the regulation of vigilance states. Through his career, Michel Jouvet also developed innovative clinical research and treatments of sleep pathologies. In particular, he discovered the awakening properties of a molecule (Modafinil) which today is still the most efficacious for successfully treating hypersomnia and narcolepsy, two incapacitating sleep pathologies. Author of a very large number of internationally acknowledged publications, invited to the most prestigious conferences on biological and medical science, member of the French Academy of Science, Michel Jouvet is undoubtedly one of the most renowned and respected French scientists.

For all these reasons, the last generation of researchers belonging to his school organized to express their gratitude an international meeting gathering together historic leaders in the field. This convention named "The paradox of sleep: an unfinished story" took place during two sunny days at the Military Health Service School in Bron, France (3-4 September 2003). The occasion attracted a large number of attendees (300, 27 countries) and has been a great success both emotionally and scientifically gathering together many of the collaborators, friends, and even "ennemis d'antan" of Michel Jouvet. Thanks to the 37 outstanding speakers and chairman, we went over Michel Jouvet's career and discovered the last advances in the field. To remember this event, Pr. Ottavio Pompeiano, as the Editor in Chief of "The Archives Italiennes de Biologie", kindly offered to publish the proceedings of the meeting. After several months of hard work, the present volume was finalized and is now published. I will like to thank personally and also in the name of Michel Jouvet all contributors to the present issue and also all participants to the meeting organized by the international (Pr. B.E. Jones, Pr. Michael Chase, Pr. Emmanuel Mignot, Pr. Irène Tobler) and local (Dr. P-H Luppi, Dr. R. Cespuglio, Dr. T. Faivre, Dr. P. Fort, Dr. J-L Valatx) organizing committees.

Pierre-Hervé Luppi