PREFACE

The year 2017 marked the 200th anniversary of the publication of James Parkinson's *Essay on the Shaking Palsy*, in which the condition that would later bear Parkinson's name was first described in detail. In this work, Parkinson characterized six cases of patients that had developed a disorder of tremor, slowed movement, and gait disturbance, which he called "paralysis agitans." Since this initial description, it has become clear that Parkinson's disease in fact manifests with a wide variety of neuropsychiatric, cognitive, autonomic, and other nonmotor symptoms, in addition to the characteristic movement disorder that Parkinson described, and that there is probably a spectrum of disease consisting of as yet poorly defined clinical and pathological subtypes. While we know that the neuronal protein α-synuclein is central to Parkinson's disease pathology, and that the movement disorder results largely from loss of dopaminergic neurons of the substantia nigra pars compacta, our understanding of disease mechanisms remains limited, and as such no disease-modifying treatments have been developed.

In this book, we aim to provide an overview and update on several aspects of Parkinson's disease, taking the reader from pathology to patient. We have arranged the book in two sections, with the first five chapters focusing on pathology, and the remaining four chapters tackling clinical aspects and treatment approaches. In Chapter 1, the authors have provided a comprehensive discussion about the causes and mechanisms that underlie neuronal loss in Parkinson's disease, with the following chapters on immunogenetics, *GBA1* mutations, and apoptosis offering detailed overviews of some specific aspects of these problems. Much of what we have learned about Parkinson's disease and its treatment have come from studies in animals, and the models in which these have been conducted, as well as their limitations, are discussed in Chapter 5. The wide range of clinical manifestations of Parkinson's disease are discussed in Chapter 6, as well as the conditions from which Parkinson's disease must be distinguished. Since the introduction of levodopa as a therapy in the 1960s, new developments in Parkinson's disease treatment have been few and far between, but a number of potentially exciting treatment approaches are now on the horizon. The final three chapters provide an overview of the drugs that have been used in the treatment of Parkinson's disease, as well as more recent (deep brain stimulation) and emerging (stem cells) therapeutic developments.

We would like to thank all of the authors for their hard work in contributing toward this book. We hope that the nine chapters presented would provide the reader with useful insight into a broad range of important aspects of Parkinson's disease. We hope that the reader is able to explore the understanding of Parkinson's disease that has been acquired over the years, as well as the ambiguities that remain unsolved.

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