Real People
Kathleen V. Wilkes

This book explores the scope and limits of the concept of a person — a vexed question in contemporary philosophy. The author begins by questioning the methodology of thought-experimentation, arguing that it engenders inconclusive and unconvincing results, and that truth is stranger than fiction. She then examines an assortment of real-life conditions, including infancy, insanity and dementia, dissociated states, and split brains. The popular faith in continuity of consciousness and the unity of the person is subjected to sustained criticism. The author concludes with a look at different views of the person found in Homer, Aristotle, the post-Cartesians, and contemporary cognitive science.

The Alzheimer Conundrum
Margaret Lock

Due to rapidly aging populations, the number of people worldwide experiencing dementia is increasing, and the projections are grim. Despite billions of dollars invested in medical research, no effective treatment has been discovered for Alzheimer's disease, the most common form of dementia. This book exposes the predicaments embedded in current efforts to slow down or halt Alzheimer's disease through early detection of pre-symptomatic biological changes in healthy individuals. Based on a meticulous account of the history of Alzheimer's disease and extensive in-depth interviews, the book highlights the limitations and the dissent associated with biomarker detection. It argues that basic research must continue, but should be complemented by a public health approach to prevention that is economically feasible, more
humane, and much more effective globally than one exclusively focused on an increasingly harried search for a cure.

MRI and the Differential Diagnosis of Dementia
António J. Bastos-Leite and Philip Scheltens

in Imaging the Aging Brain
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Magnetic resonance imaging (MRI) has opened up the way to diagnose dementia in vivo. It provides clear evidence for hippocampal atrophy in Alzheimer's disease (AD), lobar atrophy in frontotemporal lobar degeneration (FTLD), vascular changes in VaD, and specific findings in some rare forms of dementia. In addition, the traditional role of excluding space-occupying lesions has been kept and the combination of both aspects has rendered MRI indispensable in the diagnostic work-up.

Making and Remaking Alzheimer Disease
Margaret Lock

in The Alzheimer Conundrum: Entanglements of Dementia and Aging
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This chapter focuses on the “discovery” of Alzheimer disease (AD) and a somewhat condensed genealogy of its history to the present time. Emphasis is given to the virtual disappearance of AD for over four decades after its initial identification, followed by its rediscovery in the late 1960s in association with government and medical recognition of aging populations and their impending burden on society. The chapter also discusses the consolidation of what has been the dominant research paradigm in AD research for the past four decades-the amyloid cascade hypothesis, grounded in localization theory. Throughout the study, difficulties in attempting to unravel the entanglement of “normal” aging from dementia, evident from Alois Alzheimer’s time, are pointed out.
This concluding chapter presents emerging knowledge in both epigenetics and epidemiology, suggesting that forms of prevention that take a public health approach, including lifestyle changes, reduced exposure to toxins, reductions in poverty, increased community support, and other variables, is likely to reduce the prevalence of dementia worldwide to a much greater extent than would an approach confined to expensive molecular micro-medical management of segments of those populations deemed to be at risk that happen to be located in wealthier countries. Furthermore, a molecular approach to Alzheimer disease prevention requires healthy individuals, some as young as 18 years of age, to become research subjects on whom repeated tests will be carried out.

Palliative Care for Non-cancer Patients
Julia Addington-Hall and Irene Higginson (eds)

The specialty of palliative care has traditionally grown out of oncology and there has been little research into the needs of patients dying from causes other than cancer. Few non-cancer patients receive hospice in-patient, home care, or day care although a good proportion of hospices say that their services are available to non-cancer patients. As a result, the importance of palliative care for non-cancer patients is now being increasingly recognized internationally, and in the UK a committee reporting to the Department of Health recommended that palliative care should be accessible to all patients who need such care. This book considers the needs and experiences of patients dying from, for example, stroke, heart disease, or dementia by drawing on a range of disciplines and specialties in medicine. The provision of palliative care for patients dying from causes other than cancer raises a number of important questions for policy makers and purchasers. This book summarizes what is known about the needs of and appropriate service provision for people dying of causes other than cancer and begins to set a research agenda.
This book lays out the reasons why we should study cognitive development in adulthood, and presents the history, latest data, and results from the Seattle Longitudinal Study (SLS), which now extends to over forty-five years. The SLS is organized around five questions: does intelligence change uniformly throughout adulthood, or are there different life-course-ability patterns? At what age and at what magnitude can decrement in ability be reliably detected? What are the patterns and magnitude of generational differences? What accounts for individual differences in age-related change in adulthood? Can the intellectual decline that increases with age be reversed by educational intervention? Based on work on the SLS, this book presents a conceptual model. The model represents this book's author's view on the factors that influence cognitive development throughout the human lifespan, and provides a rationale for the various influences that have been investigated — genetic factors, early and current family environment, life styles, the experience of chronic disease, and various personality attributes. The data in this volume include the 1998 longitudinal cycle of the SLS. In light of both new data and revised analyses, psychometric and neuropsychological assessments have been linked in long-term data to aid in the early identification of risk for dementia in later life. The book also presents new data and concludes on the impact of personality on cognition. It includes correlation matrices and web-access information for select data sets.

Imaging the Aging Brain
William Jagust and Mark D'Esposito (eds)

The study of brain aging has been revolutionized through advances in molecular neuroscience, cognitive neuroscience, and brain imaging. The application of new concepts and techniques has permitted investigators to explore the changes in structure, function, and biochemistry in living humans in order to unravel mechanisms that underlie both age-related cognitive decline and preservation of cognition into old age. This book reviews both the basic science and clinical applications of brain imaging.
in the study of brain aging. Topics reviewed include technical issues associated with imaging studies in older brains, pathology of brain aging, structural changes in the aging brain, changes in dopamine function, and mechanisms of brain reserve and plasticity. The use of genetics in combination with brain imaging and the use of animal models are also explored. Clinical applications include the diagnosis and prediction of cognitive decline using a variety of different imaging approaches as well as a detailed description of amyloid imaging using PET scanning. Other topics include functional MRI studies in aging, the use of imaging in therapeutic monitoring and drug development, and the role of large-scale databases. The volume contains information both for those involved in brain imaging research and for those new to the field who are in need of a systematic overview.

Cognitive Event-Related Studies
Jay A. Liveson and Dong M. Ma
in Laboratory Reference for Clinical Neurophysiology

P300 potentials are slow waves that depend on stimuli containing information that the subject must process. The types of stimuli are independent of the sensory modality of the stimuli, and have included auditory, visual, and tactile, among others. The function of these potentials is controversial, but it best correlates with evaluation time when unpredictable events have to be discriminated. At present, these studies can be helpful in distinguishing organic dementia (such as in Alzheimer's disease) from the pseudodementia associated with depression. P300 potentials can be used to evaluate drugs. In addition, abnormalities have been found in schizophrenics, alcoholics and their families, and patients with chronic renal failure. A pre-recorded sequence of intermixed tones is presented in two manners. At first, the subject is instructed to ignore the tone (“ignore” condition). Secondly, the subject is instructed to distinguish the tones (“attend” condition). The desired response occurs only in the latter condition.
Imaging Cognitive Decline in Aging: Predicting Decline with Structural Imaging
Jeffrey Kaye
in Imaging the Aging Brain
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The focus of this chapter is predicting cognitive decline or dementia in normal older people using structural imaging. Key questions addressed include the following: What are the major methods, both clinical and imaging, that may help us to predict decline? What underlying pathologies do structural changes preceding decline suggest are developing in the brain? What is the evidence from structural studies that anatomical changes are present before behavioral ones or precede the diagnosis of mild cognitive impairment or dementia? Does imaging provide information about the pace of future decline? What are the limitations of these studies? Finally, what are the implications of structural imaging outcomes for application to the conduct of treatment studies and future research?

Differential Diagnosis of Dementia Using Functional Neuroimaging
Eric Salmon, Fabienne Collette, and Gaëtan Garraux
in Imaging the Aging Brain
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Functional neuroimaging in neurodegenerative dementias provides 3D representations of brain activity that are relatively characteristic of the underlying phenotypic distribution of cerebral lesions. They are not specific for a given brain pathology and the heterogeneity of brain diseases must always be considered. However, when methodologies are optimized, the values for sensitivity, specificity, and early diagnostic accuracy approach 80%. A lot of studies have shown that Alzheimer's disease can be distinguished from depression, vascular dementia or frontotemporal dementia, and Lewy body dementia when two techniques are used. General recommendations are to rely on multiple key regions and to combine different neuroimaging techniques to make a differential diagnosis among dementias.
The Role of Longitudinal Studies in the Early Detection of Dementia
K. Warner Schaie

in Developmental Influences on Adult Intelligence: The Seattle longitudinal study

Although the Seattle Longitudinal Study was designed to focus on cognitive changes in normal community-dwelling populations, it is inevitable that a prospective study of aging will eventually include in its successive follow-up cycles individuals who are beginning to show cognitive impairment and eventually may develop full-blown symptoms of dementia. This chapter reports some initial findings on the apolipoprotein E genetic marker of dementia as it relates to cognitive decline. Studies involving the neuropsychological assessment of a community-dwelling sample of older adults who have not previously been identified as suffering from cognitive impairment are described, along with the extension analyses that link the clinical measures with the psychometric battery for the study of normal aging. The chapter ends by analyzing studies that obtain postdicted estimates of earlier performance on the neuropsychological measures and speak to the possibility of early detection of risk for cognitive impairment.

Continuity in the Conceptual System
Jean Matter Mandler

This chapter summarizes the large body of data on the initial organization of the conceptual system. The initial, and perhaps most important, conclusion that can be drawn from the data is that because the first concepts about objects are global in nature, the acquisition process tends to emphasize differentiation. The breakdown of the conceptual system in semantic dementia is discussed.
There is a clear need for biomarkers in neuro-degenerative and psychiatric disorders for both early and differential diagnosis, personalized prediction of treatment response, and in drug discovery. Non-invasive neuroimaging is a key area for biomarker development because it connects behavioural outcomes with structural, functional, and molecular mechanisms. This chapter discusses neuroimaging biomarkers in relation to dementia, schizophrenia, and mood disorders (bipolar and major depressive disorders). The current candidate biomarkers for each disorder are reviewed, across the full range of imaging modalities, followed by an evaluation of their future prospects. The chapter concludes that there has been substantial progress towards personalized neuroimaging-based biomarkers but much remains to be done. Such biomarkers must be validated for specific disorders and may include neuroimaging and non-neuroimaging components.

Mental and behavioural disorders
Fabrizio Benedetti

In depression, a fluoxetine treatment and a placebo treatment affect similar brain regions. In addition, covert (unexpected) administration of anti-anxiety drugs is less effective than overt (expected) administration, which indicates the key role of expectation in anti-anxiety therapy. In dementia, the disruption of prefrontal executive control in Alzheimer's disease may decrease the magnitude of placebo responses, and expectations appear to be particularly important when associated to the effects of drugs of abuse. In general, placebo effects appear to be powerful in psychotherapy and, interestingly, the brain areas involved in
the psychotherapeutic outcome are different from those involved in the placebo effect, which suggests different underlying mechanisms.

Living with Alzheimer's
Renée L. Beard

Alzheimer’s is ubiquitous. Stories of the heart-wrenching drudgery of care giving, escalating incidence rates, and the new path to a cure just around the corner are everywhere. Yet we rarely see or hear from anyone actually living with AD. The negative portrayals, apocalyptic projections, and promise of cures in the mass media and medical outlets are grossly inaccurate. But they are also an assault on the identities of those with Alzheimer’s. Drawing on an 18-month ethnography observing cognitive evaluations and post-diagnosis interviews with nearly 100 forgetful individuals, this book aims to chip away at this pervasive and persistent destructive trend by revealing what life with memory loss is really like. While diagnosed seniors are ultimately socialized into medicalized interpretations of their forgetfulness, most participants achieve a graceful balance between accepting the medical label and resisting the social stigma that accompanies it. In contrast to what we are led to believe, people with early AD actively and deliberately navigate their lives. Interviews with specialty clinicians and staff from the Alzheimer’s Association reveal that a biomedical ethos generates tensions that constrain the roles older forgetful people can play within these settings. Clinicians and Association staff perpetuate “myths” about “self-loss,” “impending cures,” and the economic and emotional “burden” even if they do not personally believe them. Living with AD ultimately requires managing stigma and presumptions of incompetence in addition to the associated symptoms. Unfortunately, we, the well-meaning public, and not their dementia become the major barrier to a happy life for those affected.

Neuropsychological assessment of the orbitofrontal cortex
David H. Zald

in The Orbitofrontal Cortex
This chapter reviews the neuropsychological assessment of orbitofrontal functions. It starts by describing the major categories of neurological disorders that result in lesions of the orbitofrontal cortex (OFC). Traditional neuropsychological test batteries are generally insensitive to OFC dysfunction. A number of experimental tasks have been proposed as tests of OFC functions. These include objection alternation and object reversal learning tasks, gambling tasks, go/nogo tasks, olfactory recognition, theory of mind and social processing measures, and self- or family-rating scales of the patient's behavior. The sensitivity and specificity of these measures are discussed, with a particular emphasis on issues of functional localization. The chapter concludes with a description of rehabilitation programs aimed at addressing problems associated with OFC dysfunction.

Frontotemporal dementia and the orbitofrontal cortex
Po H. Lu, Negar Khanlou, and Jeffrey L. Cummings

Patients with frontotemporal dementia (FTD) manifest severe behavioral and personality alterations associated with orbitofrontal cortex (OFC) dysfunction. This chapter provides a review of the clinical features, neuropathology, neuroimaging, genetics, and neuropsychology of FTD as well as presenting two prototypical cases that provide a clinical picture of the disorder. Neuropathological and neuroimaging studies have identified the OFC as the brain region most prominently involved in the frontal-variant of FTD. The neuroanatomy, circuitry, and functions of the OFC are summarized, emphasizing its role in emotional and social cognition. Theories involving deficits in recognition of emotional expression, decision-making, and theory of mind have been proposed to explain the mechanism underlying the clinical expression of FTD, and the OFC is intimately involved in studies examining the neural basis underlying these deficits.

Normal and Pathological Cognitive Aging in Late Adulthood
Timothy A. Salthouse

in Major Issues in Cognitive Aging
This chapter focuses on cognitive functioning in late adulthood. It discusses three related topics: dementia, the preclinical phase of dementia, and the risk factors for cognitive decline and dementia. Dementia, and Alzheimer's disease in particular, is characterized by severe impairment in cognitive functioning. It is a particularly devastating disease because it destroys one's sense of self, and there are currently no effective treatments to prevent or even delay the disease. Research has revealed differences in cognitive performance between individuals who will and will not develop the disease several years prior to the eventual diagnosis. However, what is responsible for these relations and whether it is meaningful to refer to a distinct diagnostic category are still controversial issues.

Communicating with people with dementia
Kate Allan and John Killick

in Supportive care for the person with dementia

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This chapter argues that communication should be central to how we think about dementia and how we work with those who live with it. As for the emerging concept of ‘supportive care’ for people with dementia, it offers some thoughts about this idea generally, and about where communication should fit in. It explores three main ideas about what this thing called supportive care might look like, and where communication fits in. These ideas are illustrated with examples, quotations, and stories.