The Psychology of Fatigue

Fatigue can have a major impact on an individual's performance and wellbeing, yet is poorly understood, even within the scientific community. There is no developed theory of its origins or functions, and different types of fatigue (mental, physical, sleepiness) are routinely confused. The widespread interpretation of fatigue as a negative consequence of work may be true only for externally imposed goals; meaningful or self-initiated work is rarely tiring and often invigorating. In the first book dedicated to the systematic treatment of fatigue for over sixty years, Robert Hockey examines its many aspects – social history, neuroscience, energetics, exercise physiology, sleep and clinical implications – and develops a new motivational control theory, in which fatigue is treated as an emotion having a fundamental adaptive role in the management of goals. He then uses this new perspective to explore the role of fatigue in relation to individual motivation, working life and wellbeing.

ROBERT HOCKEY is Emeritus Professor of Human Factors and Cognitive Engineering in the Department of Psychology at Sheffield University. His research on human attention and performance, workload, stress and fatigue has emphasized the adaptive nature of human regulatory activity in task performance, and he has acted as a consultant in the maritime, rail, nuclear and space industries. He has published over 170 research articles and edited or written five books, including *Stress and Fatigue in Human Performance* (1983). Cambridge University Press 978-0-521-76265-6 - The Psychology of Fatigue: Work, Effort and Control Robert Hockey Frontmatter More information

The Psychology of Fatigue

Work, Effort and Control

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Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication, and does not guarantee that any content on such websites is, or will remain, accurate or appropriate. To the memory of my teachers, colleagues and friends:

D. Roy Davies, Donald Broadbent, Peter Hamilton and Bert Mulder

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Preface

When I decided to write this book I became aware of an obvious but previously dormant fact: that, for as long as I can recall, my intellectual life has been dominated by fatigue. My undergraduate dissertation was on vigilance, under the guidance of D. Roy Davies; my PhD was on attention and stress in prolonged tasks, under the supervision of Donald Broadbent; and my later work, while ostensibly on stress, was always ultimately about the causes of work decrement. Even when I did some research on short-term memory (as it was known at the time) I somehow managed to think of memory work as something that could go wrong if you stuck at it for too long. By the mid 1980s, inspired by Danny Kahneman's wonderful book on attention and effort, it seemed to me that the ideas of fatigue and energy mobilization could provide a way of integrating problems of performance decrement, stress, effort and arousal, and those associated with the core body of work on human information processing, and I developed a cognitive energetic theory with Peter Hamilton that emphasized these interactions.

Then my interest in fatigue took a personal as well as an intellectual direction. On moving to a new job in Sheffield in 1985 I developed a condition related to chronic fatigue, which lasted for six years. In addition to the obvious problems it caused me, I found the state intriguing because, oddly, its main impact was on my motivation and capacity for cognitive work – not simply the demands associated with the reading, writing and serious thinking of academic life, but also reading the newspaper and keeping track of the plot during films and plays – while I was still able to run and cycle, even taking part in marathons and long cycling holidays, and carrying out garden building projects in our new home.

This (admittedly, unscientific sample of one) led me to think that there may be different kinds of fatigue, or at least that feelings of fatigue may have different origins, which may not necessarily lead to the same outcomes. It also made me aware of the implausibility of fatigue being caused by a loss of energy; if that were the case why was it just my

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mental life that was impaired, while my body seemed relatively free to get on with its normal activities? My early rambling thoughts on these issues were tried out while cycling through the Yorkshire Dales with my brother, Ken Hockey, and our mutual friend, Harry French. They listened patiently and asked interesting questions while I worked my way through ideas about possible similarities and differences between mental and physical fatigue – though I don't think they were wholeheartedly convinced that the weariness we all felt on the ride might be in the head and not the legs after all!

My reading of the early work on fatigue, starting with Bartley and Chute's (1947) comprehensive review, and extending to Bartlett, Bills, Thorndike and others, suggested that my earlier enthusiasm with energy explanations of fatigue and performance decrement needed a rethink. Fatigue appeared to be less about energy than about personal motivation and interest. Specifically, fatigue seemed to reflect conflicts in the control of motivational choices - an unwillingness to continue with an activity that was unrewarding, rather than an inability to complete one that was too demanding – ideas that appear to have got lost as the problem of fatigue drifted from the theoretical landscape (at least as far as experimental psychology was concerned). I talked about these ideas with various colleagues, but most of all with Theo Meijman, with whom I had many discussions. Theo and I even planned to write a review paper and, possibly, a book on the problem, but I suppose we were both too busy at the time, and maybe too tired to take it on! But those who are familiar with Theo's thinking on fatigue will recognize its contribution to the core ideas underlying the theory presented in this monograph. I also acknowledge the formative influences of my mentors, Roy Davies and Donald Broadbent, and the invaluable experience of working (and playing) with the many wonderful colleagues I have had the privilege to know. Foremost amongst these are Tony Gaillard, Peter Hamilton and Bert Mulder, with all of whom I have spent many stimulating hours over many years. But I am also grateful for the guiding influences and stimulating ideas of John Duncan, Marion Frankenhaeuser, Peter Hancock, Danny Kahneman, Raja Parasuraman, Mike Posner, Pat Rabbitt and Wolfgang Schönpflug, as well as the thoughts and comments at various stages of numerous colleagues and graduate students, including Torbjörn Åkerstedt, Nik Chmiel, Peter Clough, Kevin Connolly, Gareth Conway, Fiona Earle, Renata Manoussos, Dietrich Manzey, John Maule, Ben Mulder, Peter Nickel, Adam Roberts, Jürgen Sauer, Nick Shryane, Andy Tattersall, Hans Veltman, Dave Wastell and Marion Wiethoff.

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Finally, I give special thanks to my wife, Jenny Hockey – seasoned campaigner, author and editor of many books on anthropology and sociology – for her regular monitoring of my efforts, and for advice, pointers, insights and constant encouragement, and for generously making allowances for my occasional inevitable shortcomings in the other activities that constitute shared family life.