

Preface

The mind is the universe in our heads—reaching out to explore physical reality, creating myths and music, arts and sciences—struggling to understand the world out there and itself. This book is about the last: the mind seeking to understand itself. Here in this volume, written by many talented people, is something of what minds have so far discovered of mind.

It was a rare strange honour, nearly thirty years ago, to be invited to edit the first edition of this book. It meant reviewing a wide range of subjects, and persuading friends and colleagues to express their thoughts with brief, telling clarity. Its reception marked their skill in communicating sometimes complicated, though fortunately almost always interesting topics. Undertaking this new updated edition has been somewhat less daunting, as being now officially retired I have more time and possibly more wisdom, though studies of mind and brain have moved on so fast it is difficult to keep up. These developments are of course the spur to this new edition, as the wealth of new facts demands revisions, with accounts of recent discoveries and new ideas. These have, indeed, forced major changes of balance and of what should be included or left out—they have even changed what we mean by ‘mind’.

As in practically any science, new techniques and technologies have profound effects. Attempts to make intelligent—and even conscious—machines reveal the powers and limitations of computers; the limitations telling us just how amazing the brain is, and how much we still have to learn. Artificial Intelligence (AI) is technically difficult, and was not appropriate to present in detail in this book, which is not generally aimed at the specialist. However essential concepts, and successes of AI such as in chess, and also the doubts of philosophers about the possibility of artificial minds like ours, will be found here, presented from a variety of viewpoints.

When the first edition appeared nearly twenty years ago, brain imaging or ‘scanning’ had only just become available. In fact, publication was held up to include the article by Marcus Raichle, a classic account of this wonderful new technology—revealing where the brain is especially active when we see, or think, or imagine, or experience emotion. These new technologies for seeing structures and functions of the living brain reveal more of how mind is related to brain than dreamed of by philosophers. For, by letting us see *where* activity occurs, it becomes possible to appreciate what brain functions are doing, as we learn more of how the brain works, and so what processes are involved. This requires related observations and experiments from the brain and mind sciences, which may help clinicians in their work. This updated edition includes a mini-symposium on brain imaging, organized by Professor Chris Frith FRS (Deputy Director of the Leopold Müller Functional Imaging Laboratory of the Wellcome Department of Neurology in University College London).

Another topic that has taken off recently is consciousness. Why are we *aware* of the world around us, with *feelings* of bodily and emotional states? What have we got that robots

haven't? As we think of the brain as an amazing machine, couldn't a computer-robot ever be conscious much as we are? A score of the most distinguished writers on consciousness have been invited to focus their thoughts in short essays on this most puzzling, most teasing topic, in a mini-symposium on consciousness. Much of this book impinges in various ways on consciousness and—what can be almost as puzzling—unconsciousness, because we are entirely unaware of almost everything going on in our active, incredibly complex brains or our minds. What is so special about conscious processes?

In order to keep this volume to a reasonable length (about 20 per cent longer than the original) much has had to be abandoned, or occasionally compressed. Sometimes this improves the presentation, as essentials can be lost in details, and no doubt readers have become more knowledgeable over the last decade or so, as so much is discussed in the media. The original, very long 'tutorial' on the nervous system has been abandoned, though it was an excellent account, as there are now several readable books on the brain and nervous system, and detailed texts are readily available for more technical information.

Where old ideas have changed with new knowledge, it is fairly safe to cut down on some of the classical topics and accounts. The immense contribution of Freud's ideas may, and in our judgement should, be revised and looked at critically in the light of later discoveries. Although we follow Freud in thinking of much of the mind as unconscious, perhaps the Unconscious he described should now be thought of quite simply as brain processes that are not in consciousness. This is a significant change, which raises new questions. Yet consciousness is only part of mind.

Over recent years, much powerful international research has focused on investigating the brain with a multitude of physiological and clinical techniques. Ancient questions of how memory, perception, and creative intelligence work are exposed to experimental methods, while still being discussed by philosophers. There is a new race of philosophers combining powers of questioning via logic and precise formulations with knowledge of experimental findings. Such changes of emphasis since the first edition have led to corresponding changes in the balance of this book. Having cut down quite drastically on Freudian ideas and claims, we have tried to represent the current technically sophisticated 'brain sciences' as they relate to mind. Some readers may see this as a loss, no doubt others as a gain. One can't win them all!

Although this Companion is useful for students, its readership is seen as much wider. Some contributions should be helpful for people and families with problems, perhaps especially of education and of mental illnesses of various kinds. It is hoped that the insights and advice of the experts here may be of practical use, while also illuminating general and personal questions that we may all ask from time to time. Answers come not only from psychologists, or from other mind or brain scientists, but from creative thinkers and writers and artists. So we find in these pages writing by all manner of people who have illuminated life with various kinds of understanding, contributing questions and answers that challenge, and with beauty and humour that fill our minds with pleasure.

As in the first edition, the brief Lives are confined to those no longer alive. It would have been too hard to explain to friends left out why they failed to be immortalized. Also as in the first edition, authorship of each entry is given with initials, with a master list that indicates who they are. Entries without initials are written by the Editor (RLG), thus explicitly admitting authorship only of those he liked, or which express more-or-less personal opinions. New to this edition is a short Glossary. This includes not only unusual or technical

words, but perhaps more important, familiar words used in special ways, by those who stray into the fascinating, dangerous territory of the mind.

An issue throughout has been the 'level' to aim at, for the book to be useful for students and interesting and entertaining for the general reader. Much recent research on the mindful-brain consists of detailed anatomical descriptions, with strange names given to structures that are not generally familiar. Though this is very important for scientific and medical research, it reads like a telephone directory in a foreign language for the uninitiated. How much of such detail to include has no simple answer. It is for readers to judge whether we have got it about right. Extensive references lead to more specialized sources and further discussions.

Some readers may question why they are being introduced to such detailed accounts of structures, especially where brain–mind processes take place. Here one might draw analogy with the functioning of a city. It is useful to know where important buildings are, and it can be useful to know that they are made of stones or bricks, or of wood. For getting around, it is essential to observe rights of way, and obstructions that may be physical or symbolic, such as traffic lights. It may also be useful and add interest to know the history of the city, and how it is developing into the future. How does it compare with other cities? In what ways, and how, might it be improved? For 'cities', read the brains we live in with our minds.

The physical architectures of cities and of brains are vital to their functioning, which can go wrong for 'physical' or 'psychological' reasons. Their structures allow what is possible, and set limits of impossibility, that may be shifted once understood. Not only an architect will gain from appreciation of the structure and functioning of their city. Everyone living or visiting or communicating will be enriched by knowledge of its origins and what goes on in it—how it works and why it sometimes goes wrong.

As cities have theatres and art and games, and are fun in many light-hearted ways, so we have allowed space here for art and music, creative writing, and humour. There are also temptations of sin. These also are challenging and delightful in a city, lifting mind above the mundane of mere survival.

There is a danger with experts, and this book is written by experts. Get an enthusiastic architect to show you his city: the danger is, the expert will spend hours on features of special interest to architects, or historians or whatever, and pass over the obvious but immediately interesting that may be found in a small guide book. Yet not only the Devil is in the details, details are where the action and the interest lie. So this book must be more than a cursory guide, to reveal wonders of the mind and how it lives in the brain; details that are, in the long run, deeply entertaining.

Thanks for making this book possible are due especially to the Oxford University Press. Its Editor responsible for the first edition was Michael Rodgers. We had many ambulatory lunches at the Trout, just outside Oxford, discussing the Grand Plan, and details, as the original book grew. Pam Coote took over the first edition from Michael Rodgers, about halfway through. It was she, with immense tact and skill, who brought it to fruition.

Michael Rodgers again took up the reigns for this new edition, until his retirement from the Press in 2003. The onerous task of completing the work for the Press was then undertaken by Joanna Harris, who has done a wonderful job. Indeed, halfway through the proofs, I named her a 'galley-slave': she steered and rowed with Trojan grace and power, bethumped by a million words. She in turn was assisted by a strong team in house and

out, especially finally Edwin Pritchard, Jane Sugarman, John Mackrell, Nick Clarke, the illustrator, Paul Simmons, and the indexer, Susan Leech.

My Emeritus position as Senior Research Fellow in the University of Bristol, in the Department of Psychology, has made this possible with a grant from the Gatsby Foundation. I am extremely grateful to Lord Sainsbury for his remarkable generosity over the years, which has benefited so many people, and made possible so many enterprises, of which this is just one small example.

It has been my good fortune to work with wonderful, patient, and highly intelligent secretaries. For many years Janet John devoted much of her time to this book, gradually weaning it, as technology advanced, from scissors and sticky tape to computers and fax and email. These advances have made a tremendous difference to the speed and pleasure of this, as of so much other creative work. Upon Janet's retirement, Susan Szafarz took over, with care and attention beyond normal, continually repairing my characteristic chaos. Then, upon Susan's retirement, Sally Haseman has recently taken over, with a quickness of finger on the keys and of mind that is a delight.

There has been a wealth of advice and creative criticism. For the first edition, the late Professor Oliver Zangwill FRS, then Professor of Psychology at Cambridge, advised on clinical psychology for which I have no special knowledge. Sadly, Oliver, who was my respected boss for sixteen years at Cambridge, died in 1987 after a long illness. Another much respected teacher was the late Professor Derek Russell-Davis, who contributed much-to-the-point articles in the first edition, almost all retained here. Professor Sir Martin Roth FRS (Emeritus Professor of Psychiatry at Cambridge) took over from Oliver Zangwill to advise on clinical issues, contributing his immense knowledge and experience, for which I am extremely grateful. A recent graduate of this Department, Katriina Burnet, helped with references and gave useful suggestions and advice from her fresh knowledge, and not over-convoluted cortex.

Lastly for thanks—the contributors—whose work speaks for itself in these pages. May I echo, as I much hope, your thanks for their efforts to interest and instruct, and also to entertain, as this book sets out to be a friendly companion to the mind.

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