
Preface

Reliable scientific evidence about consciousness has often been difficult to find. This volume presents more than five dozen significant articles in the brain and cognitive sciences, all with a direct bearing on the subject. Our guiding idea has been to select studies that ask, “What *difference* does consciousness make? What are its properties, and what role could it play in the nervous system? How do conscious brain functions differ from unconscious ones?” Among the published articles that satisfy this standard we have aimed for the most definitive, the pioneering, the most articulate, and the briefest. We believe they are of fundamental importance.

We have thought especially about readers who are new to this fast-growing literature. Wherever possible we have looked for good introductory articles, and our own introductions are meant to highlight briefly why each one is important. We are painfully aware that we have had to omit many significant articles. Each selection should therefore be considered a point of entry to a larger body of published work.

Although we emphasize breadth, we have not covered neighboring topics such as voluntary control and self. A new literature is emerging there, such as the remarkable reconstruction by Hannah Damasio and coauthors of the brain of Phineas Gage, the nineteenth-century brain-injured patient who underwent a great change of personality when his frontal cortex was penetrated by an explosively driven railroad spike (1994). An equally important body of findings is now growing on voluntary control, including work by psychologists like Daniel Wegner on agency (Wenzlaff and Wegner 2000) and by neurologists on brain conditions that dissociate voluntary from involuntary control. Consciousness, self, and voluntary control are indeed sister issues, but they cannot be covered in depth in a single volume.

Finally, we omitted ideas that are unsupported by evidence at this time. There has been much discussion of quantum-theory claims about consciousness, for example, for which we have no

direct evidence at present. Although no hypothesis can be excluded a priori, this volume presents ideas for which we have reasonably direct evidence today.

The Rediscovery of Consciousness

Because of the curious history of consciousness in the twentieth century, this most fundamental human question has been oddly neglected. Yet for decades now, the evidence has been mounting in quantity and quality. The scientific community has responded with rising interest. After almost a century of neglect, consciousness has become a major focus for research. Each month new findings appear in leading journals. In the coming century this new ferment is likely to reshape our understanding of mind and brain in the most basic way.

Consciousness has long been seen as central to the human condition, with a serious literature dating to the earliest written records from Asia and the Fertile Crescent. It interpenetrates all human functions. Sensory perception, attention, and language can be usefully divided into conscious and unconscious aspects. Many memory researchers now believe that consciousness partitions their field in crucial ways, in distinguishing between fundamental concepts like “recall” and “recognition,” for example. Motivation, action control, emotion, learning, and development all interact with consciousness in fundamental ways.

With the advent of a body of scientific evidence bearing directly on the subject, a core study program seems to be emerging. In the brain sciences, psychology, and philosophy, new courses and seminars are being taught. Specialized doctoral programs have been organized in a few places, and many laboratories are refocusing their efforts. Even where the word “consciousness” is still treated with caution, the same questions are debated. We believe this volume can contribute to informed discussion by pre-

senting the breadth and depth of the field, showing the strength of the scientific foundations and highlighting pathways for the future.

Our gratitude goes to the authors presented here and to those who deserved to be included, but for the limitations of space. We honor the pioneers, who often had to work in very difficult circumstances. All who care about understanding human consciousness are in their debt.

Note: After the manuscript of this book was essentially complete, James Newman died unexpectedly, to the great shock and regret of his friends. Jim was a pioneer in scientific studies of consciousness. He made noteworthy contributions to the interpretation of thalamocortical mechanisms, as well as to scientific organizations and activities in the field. He was affiliated with Colorado Neurological Institute. This book is gratefully dedicated to his memory.

References

- Damasio, H., Grabowski, T., Frank, R., Galaburda, A. M., and Damasio, A. R. (1994) The return of Phineas Gage: Clues about the brain from the skull of a famous patient. *Science* 264: 1102–1105.
- Gray, J. A., Wedderburn, A. A. I. (1960) Grouping strategies with simultaneous stimuli. *Quarterly Journal of Experimental Psychology* 12, 180–184.
- Wenzlaff, R. M., Wegner, D. M. (2000) Thought suppression. *Annual Review of Psychology* 51: 59–91.

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