

Contents

PART I. CODING AND REPRESENTATION	1
1. The problem	1
2. Purpose, direction and history	3
3. What's in a brain?	8
4. Mentality is not separable from the brain	11
5. The brain as an agent. Brain programs	17
6. Living and knowing	23
7. Information	26
8. The maintenance of order. DNA	33
9. Embryology, adaptation and evolution	40
10. The languages of life and of the brain	47
11. Intentionality	51
12. Representation and computation in the brain	61
13. The origin of signals in the cortex	68
14. Changes in the brain before an intentional action	73
15. Some sites of linguistic activity in the brain	75
PART II. PERCEIVING	79
16. Perception as a search for information	79
17. The senses in the skin and their cortical centres	86
18. Taste and smell	98
19. Pain and internal sensations	102
20. The senses of posture and balance	105
21. Hearing	108
22. Vision	116
23. The visual cortex	121
24. The eye's search for information	128
25. Some theories of vision	137
PART III. LEARNING	148
26. Memory	148
27. Memory as a process of selection	156

28. The hippocampus and memory	161
29. Memory and development	168
30. Summary of some essential features of memory systems	170
PART IV. VALUING	173
31. Wants, needs and values	173
32. The hypothalamus	178
33. Some examples of regulation	184
34. Emotional responses	187
35. Ethics	190
36. Social man	201
37. Beauty and the brain	205
38. Freedom and determinism	207
39. What am I?	214
Notes	217