
Contents

1 A feeling for the organism	1
2 Plant behaviour foundations	10
3 The origins of photosynthesis: what are the salient characteristics of living systems?	20
4 The origins of photosynthesis: the evolution of life and photosynthesis	31
5 Why did plants become multicellular?	42
6 Convergent evolution is common in plant systems	53
7 Are angiosperms more complex than mammals?	65
8 Plant behaviour: first intimations of self-organization	73
9 The varieties of plant behaviour	83
10 The self organizing plant: lessons from swarm intelligence	93
11 Self-organization: cambium as the integration assessor	105
12 Self-organizing capacity in leaf behaviour	114
13 Self-organization and behaviour in root systems	122
14 Self-organization in response to gravity	137
15 Signals other than gravity	150
16 Behavioural characteristics of seeds: elements of dormancy	159
17 Games plants play	168
18 Competition and cooperation between individual plants for mates and territory: the recognition of self	181

19 The nature of intelligent behaviour: cognition or adaptation?	192
20 Brains and nerve cells are not necessary for intelligent behaviour	201
21 Intelligent genomes	211
22 Cellular basis of intelligent behaviour	221
23 Cell organization and protein networks	232
24 Instinct, reflex, and conditioned behaviours: characteristics of plant behaviour?	243
25 Intelligence and consciousness	255
26 Intelligent foraging?	267
Index	281