



The Purposeful Brain
Ragnar Granit

When Ragnar Granit was awarded the Nobel Prize in Physiology or Medicine (with Wald and Hartline) in 1967, his scientific peer, Sir John C. Eccles, wrote that "He was awarded this prize for his work on the electroretinogram, but it should be recognized that, in fact, he has made contributions of the highest level in two rather dissimilar fields of neurophysiology; with equal fitness he could have been awarded the Prize for his work on the control of movement. His investigations of the electroretinogram were virtually completed with the publication in 1947 of his classic book, *Sensory Mechanisms of the Retina*. From that time he has been in the forefront of investigators on the control of movement, and his laboratory at Stockholm has led the world in what we may term the synthetic mechanisms controlling the discharges of motoneurons to muscle."

In this new book, Granit explains and integrates these two major brain systems—the physiology of vision and the control of motor activity. Visual perception is seen as an input system, motor control as an output system, with the goal-oriented brain mediating between. Reaching beyond the strict confines of neurophysiology, the author relates his investigation to the concerns of psychology, evolutionary biology, and the general organism-environment interrelationship. He also gauges the level of science's current understanding of how the brain works and the limits within which it might be improved.

The book is meant for readers with a more than passing interest in the deeper issues of biology, the general question of purpose in life, and the specific question of the purposiveness, the goal-directed nature, of the crowning organ of the higher forms of life. However, no special knowledge of neurophysiology is assumed; indeed, the book will acquaint readers from other fields with the most contemporary developments

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Contents

Preface	ix
1	
The General Nature of Biological Explanations	1
Physics and Biology	2
Purposiveness in Evolution	6
The Biological Approach	14
Concluding Remarks	21
2	
Purpose, Chance, and Causality	23
Purpose, Causality, and Chance	25
Practical Teleology	28
Complexity of Causes	30
Knowledge of Results	31
Immanent Teleology	34

3		
Exploring Adaptabilities		35
Adapting to Change of Purpose		37
Chemical Specification by Motor Neurons		44
Concluding Remarks		47
4		
Encephalization, Cortical Maps, and Redundancy		51
Encephalization		52
Maps and Mapping		56
General Significance of Cell Number		62
Redundancy		66
Expansion, Encephalization, and Localization		68
5		
Some Approaches to Conscious Awareness		71
Evolutionary Assets of Consciousness		74
Timing Consciousness		76
Signs of Conscious Mentation and of Arousal		78
Engrams, Communication, and Levels of Awareness		80
The Epistemological Point of View		84
6		
In Search of Building Blocks for Perception		87
From Classical to Modern Psychophysics		88
Choice of Levels of Understanding		95
The Retinal General Organization		96
Retina and Optic Nerve of Mammals		99
Subcortical Sites		102
Trigger Features of the Primary Visual Area		106

Organization within the Visual Cortex	109
Contrast and Spatial Frequency	111
The Role of Spatial Frequency Channels	116
Some Cues for Stereopsis	119
Feature Detection and Perception	122
Cues, Detectors, and Sites of Interpretation	128
7	
Birth and Some Consequences of the Single-Cell Approach to Problems of Motor Control	133
What to Explain	134
The Reflex: Its Use and Limitations	136
Afferent and Efferent Control of Tension and Extension	146
8	
Current Ideas on Brain Control of Movement	157
Hierarchic Subdivision of Control	158
Internuncial Bias	161
Voluntary Movement	164
The Pyramidal Tract and the Motor Area	168
Concluding Remarks	175
9	
Motor and Sensory Organizations in Integrated Action	177
Need for Stimulus-Bound Approaches	180
Purposive Sensorimotor Integrations	181
Active vs. Passive Sensorimotor Activity	185
Principles Applied in Explanations	186
Attention, Demand, and Behavior	189

10	
Aims and Limits of	
Explaining and Understanding	191
Integration, Models, Hypotheses	192
Cybernetic Explanations	197
Localization and Function	200
Engram Formation	204
Systems in Balance and Release	206
Lessons from Studying Simple Organisms	210
The Psychophysiological Approach	212
Notes	217
Name Index	233
Subject Index	239

Preface

Having finished this book, I really feel that the preface should be written by someone less personally engaged in it than myself. Let me therefore summarily state that it is concerned with the nature and limitations of the explanations by which we try to understand the central nervous system acting in response to the environment as an interpreter and as a mover of limbs. Explanations cannot be discussed without representative examples of findings that have to be explained. Most chapters contain some experimental results, but three (6, 7, and 8) are largely experimental though provided with historical introductions. Chapter 10—and to some extent Chapter 9—summarizes and reconsiders much of what has been set out in the rest of the book.

This book was planned and begun during a six months' scholarship at the Fogarty International Center, National Institutes of Health, Bethesda, Maryland, 1971–1972. Its two last chapters were written during a second stay of four months in 1975. In expressing my gratitude for these great

privileges, I am also grateful for the enormous resources of the National Medical Library in the immediate vicinity of the Stone House residence, not forgetting the excellent Library of the National Institutes, equally close and its people equally friendly and helpful.

I am indebted to the Rockefeller Foundation for a delightful stay at the Villa Serbelloni, its conference center at Lago di Como, Italy, during which I wrote the difficult Chapter 6.

Finally, I wish to thank my former secretary, Miss Gunvor Larsson, for typing the manuscript.

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