

The Neuroscience of Clinical Psychiatry

The Pathophysiology of Behavior and Mental Illness

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To my two sons, who assisted with
the artwork on Tuesday mornings at local
coffee shops while waiting for school to start.

—ESH

To my many mentors—four formally
designated in research fellowships, numerous
others who've just helped and taught along
the way—and the students and patients who have
taught me so much as well. May we all be lifelong
students!!

—MSG

Preface

Neuroscience is the basic science of psychiatry. Neuroscience describes the brain mechanisms that

- gather information from the external and internal world,
- analyze the information, and
- execute the best response.

Psychiatric disorders are the result of problems with these mechanisms.

The increased accessibility to the workings of the brain in the past 30 years has resulted in an explosion of information about neuroscience. Different lines of research such as brain imaging and animal studies along with more traditional postmortem analysis, study of medication effects, and genetic studies have transformed the way we conceptualize normal and abnormal behavior.

Bits and pieces of the neuroscience literature have filtered up to the practicing clinician, but a comprehensive understanding of the field is almost inaccessible to all but the most dedicated self-educators. The jargon is foreign and difficult to navigate. The standard textbooks are thick with contributions from multiple authors and almost impossible to read cover to cover. The relevance to the practice of psychiatry can sometimes be hard to appreciate.

We hope this book will provide a way for residents and practicing clinicians to gain a thorough appreciation for the mechanisms within the brain that are stimulating (or failing to stimulate) their patients. We also hope that the reader will have more accurate answers for the patient who asks, “What’s causing my problem?” Likewise, we hope the reader will be better prepared for the increasingly difficult neuroscience questions that appear on board certification tests.

If we’ve learned anything from our studies on the brain, it is that **LEARNING IS WORK!** The brain increases its metabolism when conducting academic assignments. The process of focusing one’s attention, understanding the concepts, and storing the new information requires energy. There is no passive learning.

Consequently, when learning is interesting and relevant it requires less energy. We have made every effort to make this material appealing and easy to consume. Pictures, drawings, and graphs have been liberally incorporated to allow the reader to learn the concepts quickly and efficiently. Every effort has been made to keep the material short and concise, but not too simple. Finally, we think information that is relevant to the reader is easier to retain, so we have tried to keep bringing the focus back to the practice of psychiatry.

We intend our book to be for three populations. First, it is for those in training: psychiatrists, psychologists, counselors, and allied physicians. Second, it is for psychiatric residents seeking to review the topics in preparation for their board examinations. And last, it is for the practicing clinician who was trained before the revolution in neuroscience and who would like to become more up-to-date and familiar with the field.

We hope that the reader will have a thorough—soup to nuts—understanding of the important topics in neuroscience and will henceforth be able to read and comprehend the future research in this field.

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Mark S. George, MD

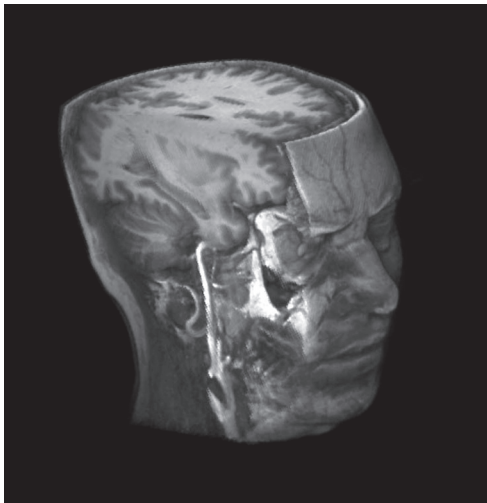
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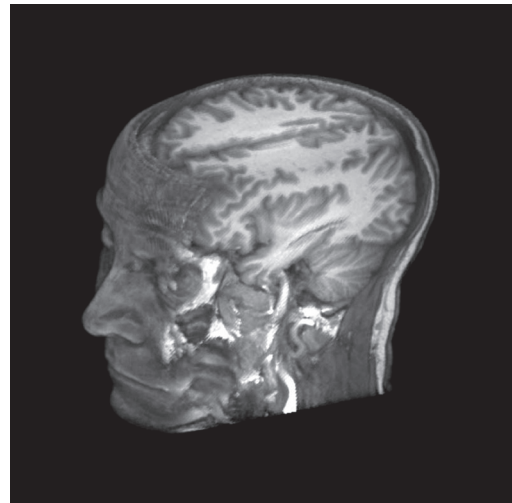
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Contents

SECTION I **The Neuroscience Model**

1	Introduction	2
2	Neuroanatomy	15
3	Cells and Circuits	29
4	Neurotransmitters	41
5	Receptors and Signaling the Nucleus	53
6	Genetics and Epigenetics	64

SECTION II **Modulators**

7	Hormones and the Brain	79
8	Plasticity and Adult Development	92
9	Immunity and Inflammation	108
10	The Electrical Brain	122

SECTION III **Behaviors**

11	Pain	133
12	Pleasure	148
13	Appetite	164
14	Anger and Aggression	177
15	Sleep	191
16	Sex and the Brain	207
17	Social Attachment	222
18	Memory	237
19	Intelligence	249
20	Attention	261

SECTION IV Disorders

21 Depression	274
22 Anxiety	288
23 Schizophrenia	302
24 Alzheimer's Disease	316
Bibliography	328
Answers to End-of-Chapter Questions	346
Index	348