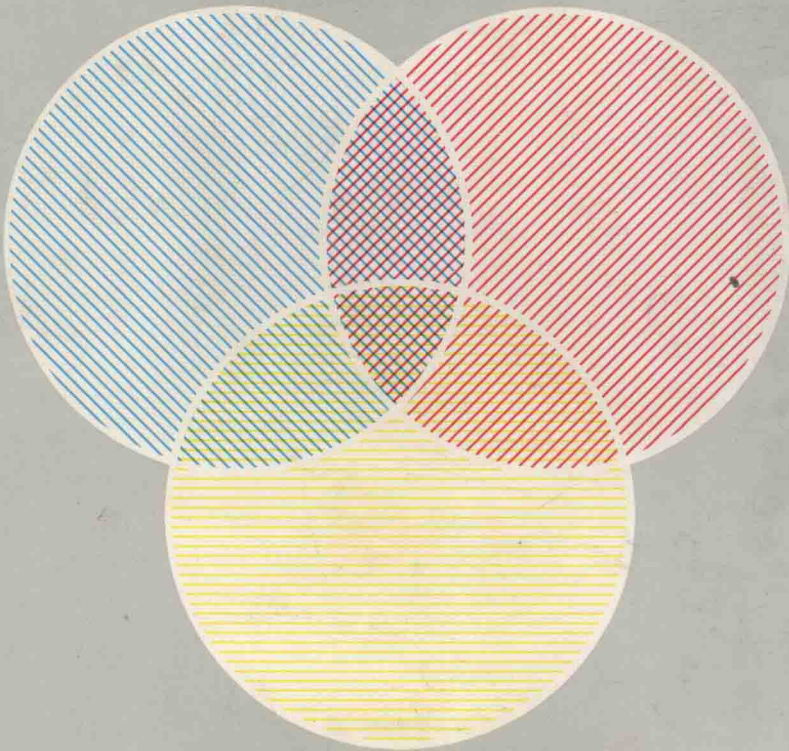


# **Pediatrics, Neurology, and Psychiatry — Common Ground**

**Behavioral, Cognitive, Affective, and Physical  
Disorders in Childhood and Adolescence**



**Joel Herskowitz, M.D.  
N. Paul Rosman, M.D.**

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WITH A FOREWORD BY

### **T. Berry Brazelton, M.D.**

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**To**

**our parents—Reida and Irwin,  
Cecelia and Murray**

**our wives—Raymonde, and  
Syrille**

**our children—Laurel and Sylvan,  
Michael, Adam, and Elizabeth**

# Foreword

As we have become better able to conquer more and more infectious, inflammatory, and neoplastic disease entities, the challenges to handle some of the subtler, more complex disorders of the central nervous system increasingly become a focus. At a time when the great majority of high-risk premature infants will survive and a large proportion will appear to have normal brain function, we can afford to develop an expectancy for optimality in all areas of child development. With a new look at the plasticity of the central nervous system, indicated by these infants' recovery from known CNS insults, we are developing an expectation for recovery of other cognitive, affective, and neuromotor processes that previously have been labeled as "fixed." The appropriate treatment for disorders of neuromotor, cognitive, and affective systems most often involves a multidisciplinary team approach. In this volume the authors bring together the talents of three disciplines toward nervous system structure and function. The main value of this book is its translation of a neurologic point of view into clear language available to pediatricians, psychiatrists, psychologists, nurses, and therapists from other disciplines. Each chapter lays out an approach to diagnosis and treatment of clinical problems—some of them more obviously neurologic than others: autism, sleep disorders, hyperactivity and attentional disorders, learning disabilities, child abuse and neglect, and drug abuse. Particularly with movement disorders, coupling this approach with the new therapeutic techniques that are evolving in the area of physiotherapy (for example, those of Bobath and Ayres) might result in more incisive therapy for central nervous system disease entities once considered fixed. As new investigative tools such as brain-mapping procedures (of Duffy and colleagues) evolve, they can lead us to a clearer etiologic and functional understanding of many such disorders of CNS function.

Meanwhile, our search must be for a preventive approach to such disorders, particularly their affective components, since an expectation for failure and a poor self-image all too frequently accompany these entities. Children

in these chapters must all suffer from the accompanying image of themselves as failures. If we can make clear diagnoses at early ages, as described by the authors, we should also be able to identify affected children earlier as at risk for failure in these developmental processes. Attention to the child's affective development with an approach that is designed to support his strengths and his opportunities for organization in the face of a deficit should optimize his chance for success in spite of an identified handicap. Then, the successful functional outcome may well outweigh the underlying CNS deficit. By clarifying the diagnosis, as well as the present all-too-inadequate state of the art in treatment of neurologic, neuropsychiatric, and neuropsychiatric disorders, the authors have brought out the need for early identification and prevention in the areas they have approached.

This book presents an excellent reference outline of the present state of the art of treatment. It leaves me, as a pediatrician, ready to reevaluate each entity from the point of view of preventive primary care. Couldn't we do better than to allow a child with a rather minor learning deficit to grow up with a permanently damaged image of himself, with an expectation for failure that far outweighs the burden of the deficit? His failure in learning becomes magnified by the functional patterns of an expectation to fail. This volume, in combining the points of view of neurology, pediatrics, and child psychiatry, becomes a base for reevaluating the state of the art of diagnosis and therapy of each of the entities approached in this book. Each case that the authors describe as examples should kindle a longing in the reader to develop a more preventive, holistic approach to the treatment of these disorders. This book should be a milestone toward the combined approach of three closely related fields—pediatrics, neurology, and child psychiatry.

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Hospital Medical Center



# Preface

As pediatricians and neurologists have become increasingly concerned with problems of behavior, learning, and other aspects of development, psychiatrists have increasingly sought biologic contributions to many such problems. Despite these trends, a book bringing together knowledge from all three specialties in approaching problems of behavior, cognition, affect, and physical function in childhood and adolescence has been lacking. This book is our response to this need. It is devoted to the common ground shared by Pediatrics, Neurology, and Psychiatry and is intended to provide an approach to problems that cut across the lines of professional disciplines.

Part One of the book, "General Considerations," is its foundation. It provides an overview of nervous system structure and function, definitions of behavior, and an outline of the clinical diagnostic process: history, examination, and investigation.

Part Two, "Major Clinical Problems," is the core of the book. It consists of 17 clinically oriented chapters, each dealing with one problem or a related group of problems. Included are Hyperactivity and Attentional Disorders, Psychosis, Memory Disturbances, Aggressive and Violent Behavior, Learning Disabilities and Disorders of Speech and Language, Mental Retardation, Depression, Sleep Disorders, Child Abuse, Seizures and Other Paroxysmal Disorders, Hysteria, Disorders of Movement, Headaches, Disorders of Eating and Elimination, Behavioral Regression, Drug Abuse, and Chronic Illness and the Dying Child. The format of each clinical chapter is as follows: Definition, Diagnosis, Differential Diagnosis, Etiology, Treatment, and Outcome. A structured, comprehensive approach to diagnosis and treatment is emphasized. Rather than an exhaustive discussion of each topic, selected aspects considered of greatest importance have been presented.

Each chapter within Part Two has a section on Correlation, which presents selected relevant Anatomic, Biochemical, and Physiologic aspects of the problems considered. More than 100 tables highlight key information so that it may be most readily available to the practitioner. The Index, exten-

sively cross-referenced, also has been prepared to be maximally useful. More than 100 illustrations have been included to amplify and clarify the text. An extensive and current bibliography, containing more than 800 Cited References, also includes Additional Readings that refer to papers of historic interest, review articles, and related topics for further exploration. In addition—constituting a “book within a book”—are over 100 wide-ranging cases, drawn from the authors’ personal experience, which provide a direct view of the clinical diagnostic and therapeutic processes in practice.

Part Three, “Conclusion,” considers issues of prevention, early intervention, and new directions in current and future research.

This book has been designed for use by medical and mental health professionals working with children—pediatricians, psychiatrists, neurologists, generalists, developmentalists, and psychologists—as well as pediatric nurse practitioners, social workers, teachers (particularly those in areas of counseling and special education), and physical, occupational, and speech and language therapists. By providing these professionals with an organic foundation within a developmental context and a structured approach to diagnosis and treatment, it is hoped that this book will assist them in dealing with complex and multifaceted problems of children and their families.

We would like to thank the following people for their contributions to the book: Dr. Joel J. Alpert for his support, encouragement, and helpful suggestions; Dr. Edward M. Kaye for help in preparing the cases; Dr. Raymonde Dumont-Herskowitz for her consultation regarding endocrinologic matters; Ms. Bonita Bröckl for assistance with the manuscript; and Mrs. Syrille Rosman for her help in a multiplicity of ways. Special thanks are due to Ms. Elizabeth Baker Volk and Mrs. Reida Postrel Herskowitz for their sustained and timely efforts in preparation of the manuscript. We have benefited greatly from the wisdom and perspective of our editor, Miss Joan C. Zulch, throughout this four-year project. Finally, we acknowledge with deepest gratitude the encouragement and understanding of our families.

Joel Herskowitz, M.D.  
N. Paul Rosman, M.D.

Boston, Massachusetts

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# **Part One**

## **General Considerations**



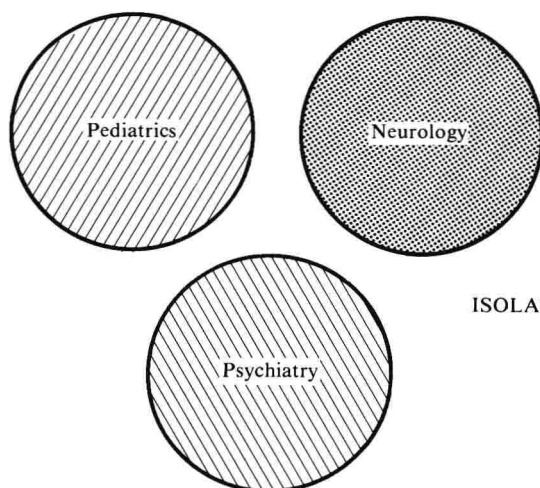
# **1 The Common Ground of Pediatrics, Neurology, and Psychiatry**

Relationships among the specialties of pediatrics, neurology, and psychiatry continue to evolve. As medicine became increasingly specialized during the twentieth century, a state of separation, even isolation, of these disciplines from one another appeared to develop. Gradually, such separation lessened then ceased, after which these bodies of knowledge began to grow toward each other. Contact, initially quite limited, has grown. Interfaces have formed, and further interaction and communication have led to a recognition of common ground (see Fig. 1–1). This common ground, considerable in extent, underlies the concerns of many professionals devoted to the health of children, particularly pediatricians, neurologists, and psychiatrists.

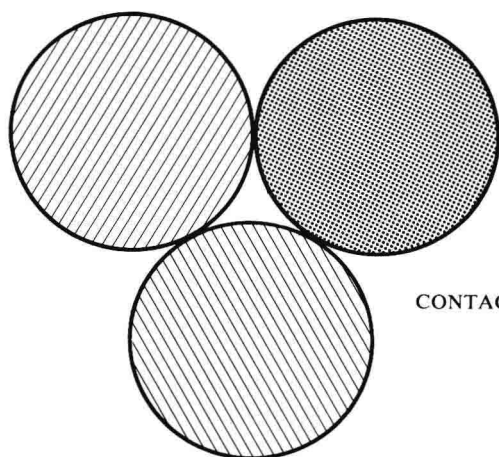
Most recently, several trends occurring within pediatrics, neurology, and psychiatry have reflected their areas of mutual concern. As immunizations and antibiotics have brought major infectious diseases under increasingly effective control, pediatrics has become increasingly involved with problems of behavior, emotion, and learning. Neurology has expanded its emphasis beyond structural components of disease to focus on physiologic and biochemical disorders of the central nervous system, while becoming more attentive to the behavioral and psychologic aspects of such disorders. At the same time psychiatry has become more biologically oriented, incorporating structural, physiologic, and biochemical knowledge of nervous system functioning from neurology with developmental perspectives provided by pediatrics. This book is based upon and devoted to this common ground.

## **HEALTH AND DISEASE IN CHILDHOOD**

Health, as has become widely recognized, is not merely the absence of disease. Rather, it is a state of physical, emotional, and social well-being in which the person—in this instance, the child—is able to participate actively in age-appropriate activities and to grow. Growth is indeed the “job” of childhood. It applies not only to physical development (in such terms as height, weight, and head circumference) but to cognitive, emotional, and social development as well. Disease can be considered to involve a breakdown



ISOLATION



CONTACT

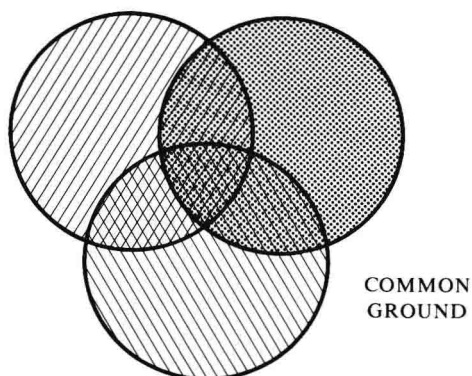
COMMON  
GROUND

FIGURE 1-1. Evolving relationships between pediatrics, neurology, and psychiatry.

in one or more of these areas. The state of well-being is lost. Physical growth may suffer, emotional upset occur, or social adjustment be impaired.

Human beings exist in a state of delicate balance at multiple levels. A problem at one level of organization may have important repercussions at other levels. For example, substitution of a single amino acid in a polypeptide chain of hemoglobin can lead to sickling of red blood cells, which results in impaired blood flow to many organs, causing severe pain, tissue damage, and chronic disability or death. This disorder, sickle cell disease, like many others, can be viewed at several levels in a multiaxial framework from the molecular to the social.

The emotional and social consequences of disease will depend upon the age and developmental level of the child. Beginning with infancy, the child's affective development becomes increasingly complex, while social interactions progressively widen from the mother-child pair to nuclear family, school, and community. Therapy should be directed toward restoring normal function at those levels through a program that may involve directly treating the illness, altering the child's milieu, and helping the child and family adjust to the problem.

Ideally, recognition of a molecular defect would lead to correction of the problem at that level and at all higher levels as well. In fact, with early identification of such disorders as congenital hypothyroidism and phenylketonuria, treatment at the molecular level can prevent abnormal development. With sickle cell anemia, however, among other disorders, knowledge of the basic defect has not yet led to definitive treatment. Thus, therapy remains symptomatic and only partially helpful.

The clinical diagnostic process—history, examination, and investigation—is structured to deal with problems at multiple levels. Its goals are to establish as specific a diagnosis as possible, provide information as to prognosis, and formulate a comprehensive treatment plan. As an integral part of this process, it is important for the professional to gain an understanding of the psychosocial framework within which problems have been recognized and help sought. For example, headaches may have appeared or worsened with the onset of adolescence, upon changing schools, or with the death of a family member.

Indeed, it is always appropriate to ask, explicitly or implicitly, "Why has the child been brought for evaluation *now*?" Sometimes the child's problem is relatively minor, and parental anxiety has played the largest part in their seeking professional help. At other times a chronic problem (such as recurrent headaches) has become intensified, a long-standing difficulty (such as clumsiness) has caused the child increasing embarrassment, or new difficulties (such as fecal soiling, loss of consciousness, or involuntary movements) have appeared.

## RECOGNITION AND EVALUATION

Entry into the clinical diagnostic process can itself be a complicated matter. The essential element is a symptom—a disturbance in function recognized by the child, parent, or other lay person—or a sign, an objective abnormal-



ity recognized by a professional. If the disturbance is not severe (for example, a mild headache), the child may consider it part of normal experience. Hence, such a symptom may be present for weeks or months without being recognized as a problem. If the child mentions it to a parent, one of several courses may be pursued. The parent may reassure the child that "it's nothing." The parent may recognize a possible problem but not feel it is serious enough to merit professional attention. Or the parent may seek evaluation of the child.

Simple reassurance by telephone, brief examination to exclude "something serious," or definitive assessment consisting of careful history and examination supplemented by well-chosen investigations may result from professional involvement. The professional person must always listen carefully to what the child and the parents are saying and give them confidence to speak about things that may be difficult to describe or that seem strange or "weird."

The case of a seven-year-old girl with migraine headaches illustrates several aspects of the processes of recognition and referral and the multifaceted nature of a seemingly straightforward problem. When this first-grade girl returned from school each day, she lay down for a two-hour nap. She did not complain to her mother that anything was bothering her, and she seemed otherwise well, although she appeared to lack energy for her usual activities.

She was seen by her pediatrician, who learned that the child's after-school fatigue was accompanied by headache. It was pounding in quality, involved the forehead on both sides, began gradually without warning, and was associated with an upset stomach. School performance had been considered satisfactory, but finishing assignments in class was chronically difficult for her, especially when it involved the use of pencil and paper.

On examination, the child was subdued and looked sad. Although her high intelligence was apparent in conversation, she could read barely at grade level. Handwriting was sloppy. Geometric figures were drawn slowly and crudely for her age. Examination was otherwise unremarkable.

She was considered to have a form of childhood migraine because of the characteristic pounding quality of her headaches, accompanying abdominal pain, and positive family history. Academic stress (associated with perceptual-motor dysfunction) was felt to be an important precipitant, with fatigue and depression secondary to the chronic school problems also contributing to the child's symptoms. Because she had been performing at grade level, her classroom teacher had not perceived a problem. Once the school-related stresses were recognized, additional testing was carried out to clarify further her areas of difficulty. She received individualized help within the classroom, her headaches disappeared, and she was able to resume her regular after-school activities.

This case illustrates the interplay that commonly occurs among different etiologic factors and also shows characteristic impairment at various levels of function: physical, academic, and social. The child's migraine syndrome clearly falls within the common ground of pediatrics, neurology, and psychiatry, as do such frequently encountered problems as hyperactivity, sleep disorders, and memory disturbances.