

MARSHALL H. KLAUS • JOHN H. KENNEL

PARENT-INFANT BONDING



SECOND EDITION

PARENT-INFANT BONDING

MARSHALL H. KLAUS, M.D.

Professor of Pediatrics,
Case Western Reserve University School of Medicine,
Rainbow Babies and Children's Hospital,
Cleveland, Ohio

JOHN H. KENNEL, M.D.

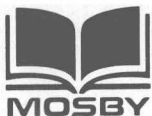
Professor of Pediatrics,
Case Western Reserve University School of Medicine,
Rainbow Babies and Children's Hospital,
Cleveland, Ohio

SECOND EDITION

with 57 illustrations

The C. V. Mosby Company

ST. LOUIS • TORONTO • LONDON 1982



A TRADITION OF PUBLISHING EXCELLENCE

Editor: Alison Miller

Assistant editor: Susan R. Epstein

Manuscript editor: Diony Young

Design: Diane Beasley

Production: Ginny Douglas

Cover photograph by **Ken Kondo**, *Senior Medical Photographer*,
Case Western Reserve University

SECOND EDITION

Copyright © 1982 by The C.V. Mosby Company

All rights reserved. No part of this book may be reproduced
in any manner without written permission of the publisher.

Previous edition copyrighted 1976

Printed in the United States of America

The C.V. Mosby Company

11830 Westline Industrial Drive, St. Louis, Missouri 63141

Library of Congress Cataloging in Publication Data

Klaus, Marshall H.

Parent-infant bonding.

Rev. ed. of: Maternal-infant bonding. 1976.

Bibliography: p.

Includes index.

1. Infants (Newborn)—Family relationships.
 2. Parent and child. 3. Infants (Newborn)—
Diseases—Psychological aspects. 4. Abnormalities,
Human—Psychological aspects. 5. Perinatal
mortality—Psychological aspects. I. Kennell,
John H., 1922-. II. Title. [DNLM: 1. Child
development. 2. Family therapy. 3. Infant,
Newborn, Diseases. 4. Maternal deprivation.
5. Parent-child relations. WS 105.5F2 K63p]
- RJ251.K56 1982 618.92'01'019 81-14056
ISBN 0-8016-2686-2 (Hardbound) AACR2
ISBN 0-8016-2685-4 (Paperbound)

C/D/D 9 8 7 6 5 4 3 2 1

03/C/341 (Hardbound) 03/B/315 (Paperbound)

PARENT-INFANT BONDING

CONTRIBUTORS

ROBERTA A. BALLARD, M.D.

Department of Pediatrics,
Mount Zion Hospital and Medical Center,
San Francisco, California

BERTRAND CRAMER, M.D.

Chief of Child Guidance Center,
Geneva, Switzerland

CAROLYN B. FERRIS, R.N.

Department of Pediatrics,
Mount Zion Hospital and Medical Center,
San Francisco, California

NANCY A. IRVIN, M.S.S.A.

Department of Pediatrics,
Mount Zion Hospital and Medical Center,
San Francisco, California

CAROL H. LEONARD, Ph.D.

Department of Pediatrics,
Mount Zion Hospital and Medical Center,
San Francisco, California

MARY ANNE TRAUSE, Ph.D.

Division of Neonatology,
Fairfax Hospital,
Department of Pediatrics,
Georgetown University School of Medicine,
Washington, D.C.

Critical commentators

KATHRYN BARNARD, Ph.D.

Professor of Nursing,
University of Washington,
Seattle, Washington

T. BERRY BRAZELTON, M.D.

Associate Professor of Pediatrics,
Harvard University,
Cambridge, Massachusetts

M.A. CURRY, R.N., D.N.Sc.

Associate Professor,
Department of Family Nursing,
Oregon Health Science University,
Portland, Oregon

TIFFANY M. FIELD, Ph.D.

Mailman Center for Child Development,
University of Miami,
Miami, Florida

ERNA FURMAN

Cleveland Center for Research in
Child Development; Assistant Clinical
Professor in Child Therapy,
Department of Psychiatry,
Case Western Reserve University,
Cleveland, Ohio

MORRIS GREEN, M.D.

Professor and Chairman,
Department of Pediatrics,
University of Indiana School of Medicine,
Indianapolis, Indiana

DORA HENSCHEL

Head Midwife, Charing Cross Hospital,
London, England

NATACHA JOSEFOWITZ, M.S.W.

Professor of Management,
College of Business,
San Diego, California

EMANUEL LEWIS, M.B.

Consultant Psychiatrist, Charing Cross
Hospital and Tavistock Clinic,
London, England

BETSY LOZOFF, M.D.

Assistant Professor of Pediatrics
and Anthropology,
Case Western Reserve University,
Cleveland, Ohio

RAMONA MERCER, R.N., Ph.D.

Associate Professor, University of
California School of Nursing,
Department of Family Health
Care Nursing,
San Francisco, California

RUTH MERKATZ, R.N., M.S.N.

Assistant Clinical Professor of Nursing,
Case Western Reserve University,
Cleveland, Ohio

KLAUS MINDE, M.D.

Professor of Child Psychiatry,
Hospital for Sick Children,
Toronto, Ontario, Canada

MICHEL ODENT, M.D.

Director, Obstetrical Unit,
Centre Hospitalier Général de Pithiviers,
Pithiviers, France

ROSS D. PARKE, Ph.D.

Professor of Psychology, University of
Illinois at Urbana-Champaign,
Urbana, Illinois

JAMES ROBERTSON

Robertson Centre,
London, England

JOYCE ROBERTSON

Robertson Centre,
London, England

JAY S. ROSENBLATT, M.D., Ph.D.

Director, Institute of Animal Behavior,
Rutgers University,
Newark, New Jersey

ALBERT J. SOLNIT, M.D.

Professor of Pediatrics and Child Psychiatry,
Yale Child Study Center,
New Haven, Connecticut

*To our patients
and their parents*
and to **Susan, David,**
Alisa, Laura, and Sarah Klaus
and **Peggy, David, Susan,**
and **Jack Kennell**

FOREWORD

In this second edition Drs. Klaus and Kennell have responded to my challenge in the first edition to keep their work current as new advances are identified. They have expanded the knowledge base to include a review of new evidence from most recent studies and have added several new chapters covering a variety of relevant topics. Taken together these additions clarify and refine the concepts presented in their first edition. In retitling their book *Parent-Infant Bonding* the authors demonstrate an increased recognition and a greater appreciation for the undoubtedly complex human ecological process central to healthy family development.

The theme of this very timely book deals with the issue of "how to make human beings human," starting in the earliest days of life. Its focus is on the genesis of the earliest relationship that a baby develops with his parents—and the factors that may enhance or inhibit this process. It is timely because, in historical perspective, although we have achieved great progress and can take pride in our accomplishments, we have reached a point at which past practices are being reexamined and new directions charted. At such times of ferment it is good to have guidance from experts who are skillful clinicians and scientists aware of the frontiers in the science and art of care of the family of the normal and sick newborn baby. We can be grateful that, with their professional skill, the authors blend a keen sensitivity to the needs of parents of both well and ill newborns, openness in the reexamination of issues, theoretical orientation that permits them to examine and to think critically about the complicated issue of attachment between parent and newborn, and modesty in placing their scientific studies as well as those of others in perspective.

But why are we in a state of rapid modification of practices surrounding the care of the newborn infant and his family? We need to look at the history of medicine since the turn of the century. At that time advances in the natural sciences made possible the modern era of scientific medicine and particularly clinical investigation. Medical education in its modern form emerged, as did the modern hospital system.

That the results of these developments had a major effect on saving the lives of mothers and infants during the subsequent decades is clear. The growing knowledge of microbiology, immunology, nutrition, and metabolism resulted in improved public health practices, with a lowering of infant mortality (deaths under 1 year of age per 1000 babies born) from approximately 100 in 1915 to 13 in 1978.

Although this progress demonstrates great accomplishment, the efforts to apply

the new knowledge resulted in an institutionalization and professionalization of obstetrical and infant care that removed mother and baby from intimate contact with each other and with the family. The increasing knowledge and technology in the care of the premature and sick infant has in recent years resulted in the development of the new subspecialty of neonatology or perinatology and intensive care nurseries that, albeit inadvertently, have contributed further to the isolation of mother from newborn and family from one another.

The increasing isolation of babies from mothers and of babies and mothers from the family at a time of a major family event has resulted in disquiet on the part of both parents and professionals, with a consequent critical reexamination of these practices. A better understanding of epidemiology and infectious disease control has made it feasible to think of modifying long-standing practices. Simultaneously, the growing disciplines of infant observation and child development have focused attention on the importance of studying the interactional and deprivational aspects of this earliest period.

We are fortunate that the authors were among the pioneers in reopening the nurseries—especially for the premature and sick infant—to parents and their families. We are fortunate, too, that they have undertaken to study systematically the effects of this process and that these studies continue. Thus their studies and those of others they review strongly favor a more flexible and liberal policy as being beneficial to babies and families. These studies lead them to present a theoretical framework consonant with their developmental orientation. They assert the importance of a parent-infant bonding and identify a sensitive period in the first minutes and hours of life, during which close contact of mother and father with the neonate have profound effects on their infant's growth and development. They go on to suggest a bidirectional interaction in that the newborn signals back, thus setting in motion an initial interaction that may lead to a profound and long-lasting attachment. In this edition the authors deal more extensively with a critical evaluation of the long-term effects of early attachment, since many investigators have raised many questions in light of the long period of dependency of human beings. Attachment clearly is a long-term process with many subtleties.

We are fortunate, too, that the authors have shared with us their sophisticated, yet practical, review of the scientific literature that only long-term immersion in a problem can make possible. There is no oversimplification of relevance in the presentation of animal studies and cross-cultural experiences for our society. Yet there is much to stimulate thought about the issues that are considered.

Finally, we are fortunate that the authors are clinicians deeply immersed in clinical practices as well as investigation. This comes through on every page; from their insights and from the literature they draw many inferences that they pass along to us. Other clinicians may have some differences—as clinicians generally

do—but none can say that the suggestions are not drawn from struggling with the many complex problems of a rich clinical experience.

Thus Drs. Klaus and Kennell have presented a blend of science and art in the care of the newborn and his family and an important theoretical framework for the study of the earliest relationship between the newborn and his parents.

Fortunately, the state of our science and art supports care that seems to be more humane. The authors, through their pioneering clinical and research efforts and through the uniqueness of this volume, have done a great service to families and the child-caring professions. The British epidemiologist Dr. Archie Cochran has stated that modern medicine is moving from a predominant concern with curing to incorporating that of caring as well. This edition will undoubtedly continue to serve as a handbook for family care of the normal and sick newborn baby. We can hope that the authors will again accept the challenge to revise and update this book as we travel along the continuum of expanding knowledge.

Julius B. Richmond, M.D.

PREFACE

In the foreword to the first edition of *Maternal-Infant Bonding* Julius Richmond challenged us to continue to revise and update the book. Although only six years have passed since the previous edition was published, this revision has been a much more difficult task than we imagined. A large number of creative research workers have entered the field from a wide range of disciplines, including animal behavior, anthropology, ethology, ethics, history, nursing, obstetrics, pediatrics, psychology, psychiatry, and sociology. This explosion of knowledge has resulted in extensive revisions of all the chapters. We have added a new chapter on siblings and a section on alternative birth centers. In this revision we have been fortunate to be joined by a large number of outstanding critical commentators from the United States, Great Britain, Canada, and France. We have included their thoughtful and perceptive comments in the text and hope they will enliven, broaden, and clarify issues for the reader. As might be expected, we have benefited immensely from thought-provoking discussions with a number of scholars and researchers concerned with parent-infant interaction, birth, bonding, attachment, and infant development. They include Drs. Pat Bateson, John Davis, Robert Hinde, Martin Richards, John Bowlby, James and Joyce Robertson, Selma Fraiberg, and T. Berry Brazelton. We were distressed when the word *bonding* became too popular too rapidly and was confused with a simple, speedy, adhesive property rather than the beginning of a complex human psychobiological process. For many months we tried to change the terminology to parent-to-infant *attachment*. James and Joyce Robertson used the term *bonding* for parent-to-infant attachment in a paper and then charmingly and convincingly explained to us that the word was so well known that it was here to stay. We have been more at peace with its use ever since. We would like to mention our special help from Barbara Korsch. On many occasions she has had the forthrightness to disagree with us wholeheartedly. We would especially like to thank Dr. Richard Behrman, who gave us the time to carry out our research. Again we are indebted to many thoughtful students, including Robin Geller, Sue Swanson, Michelle Walsh, Kathy Masis, and Nancy Wollam-Huhn. Our ideas have been sharpened by Manoel DeCarvalho, Jose Diaz-Rossello, Deborah Jean Hales, Dennis Drotar, Betsy Lozoff, Norma Ringler, a number of neonatology fellows, and our very close and treasured associates who repeatedly confront us and help us work out many of our ideas. Here we would like to make

special mention of Steve Robertson and Mary Anne Trause who have been our close colleagues throughout most of the last eight years. We give special thanks to our research associates, Melissa Masoner and Mary Ann Finlon, our research nurses, Carolyn Rudd and Roberta O'Bell, our editor, Connie McSweeney, our former secretary, Betsy Wilber, and our secretary, Dianne Kodger. A special note should be made about our laboratory in Guatemala at Instituto de Nutrición de Centro America y Panama, which continues to be staffed by three superb, dedicated, and thoughtful research workers, Marta Isabel Garcia, Rubidia Méndez Lopez, and Maricela Ochoa de Zelada, our pediatrician associates in this endeavor, Roberto Sosa and Juan Urrutia, and the personnel at Roosevelt and Social Security Hospitals. Our work during the past six years would not have been possible without the generous support of The William T. Grant Foundation, The Maternal and Child Health Grant No. 642-3326, NIH, The Research Corporation, and The Thrasher Foundation.

When we started our research we had no idea that the exploration of birth, interaction, and attachment could be so fruitful and exciting. We hope the reader can capture and share in our enthusiasm about the discoveries reported in the pages of this book. We have been particularly amazed by the richness of the marvelous natural processes that help the human mother progress through labor, birth, and the early postpartum period. We are impressed that many of the advances in pediatrics and obstetrics that have benefited some high-risk mothers and babies appear to disrupt and negate the normal physiological processes in healthy mothers, fathers, and babies.

Marshall H. Klaus
John H. Kennell

PREFACE to first edition

For each of us, learning is a personal adventure; therefore we have deviated from the traditional style and have used several techniques in this book.

One innovation is the use of the patient interview. Some readers may disagree with the inclusion of this material, but we believe a representative interview with authoritative comments is a thought-provoking device worthy of trial. A reading of the text will not be complete without a reading of the interview. It should be emphasized that the comments we have made about each of the three interviews cannot apply to every patient. Since we did not have long-term, in-depth interviews with the parents, there are sometimes many possible interpretations of the parents' comments. They do, however, tell us something about the feelings, thoughts, concerns, and hopes of parents during these difficult days. They have been chosen because they demonstrate or emphasize certain reactions or issues that other parents have repeatedly discussed. Some readers may choose to read the interview first and attempt to interpret the parent discussions before they note our comments. For those wishing a quick review of the subject, we have added a series of recommendations at the end of each chapter.

To demonstrate the many areas of controversy, we have asked expert consultants to comment on each chapter except the first. Some have made notes scattered throughout a chapter. Others have written a single comment, which we have inserted near the case presentation. We strongly urge the reader to consider these short, pithy, thoughtful contributions, since they extend, expand, or differ from our concepts.

This book has been organized in a special pattern that has evolved, in part, as we have developed our understanding of the subject. To understand maternal and paternal behavior in the human, we have found it valuable to learn from the detailed and precise observations of a wide range of animal species, since the requirements of caring for the young may have led to the evolution of similar behavioral patterns in humans and other animals. Because this is so crucial for our understanding, we have presented this information in a separate chapter (Chapter 2). Many studies have been summarized so that the reader may carefully note differences and similarities of parental behavior in a number of species faced with a common task. Chapter 3 describes the studies that provide the theoretical and empirical framework for discussing the care of the human mother and applies this to clinical

situations involving care of the normal human mother. Chapter 4 describes studies related to the families of premature and sick infants and makes specific recommendations for their care. For several years we have been interested in Dr. Bertrand Cramer's interpretation of the reactions of parents to their premature infants, and we have included his discussion at the end of Chapter 4. He listens to these parents with the ears of a psychoanalyst having experience in both the United States and Europe. Chapter 5 takes on the painfully sad and difficult problem of a baby born with a malformation, a frequent occurrence in a high-risk nursery. In most pediatric units the greatest number of deaths occur on the newborn service, particularly in the high-risk nursery. The range of parental reactions to the death of a newborn is described in Chapter 6, accompanied by recommended procedures for the physician who has cared for the infant who has died. The latter three chapters (Chapters 3 to 6) first present basic research data, followed by a case study with our comments. Next there are clinical recommendations and a list of practical hints. We hope that the critical comments interspersed in the text will provoke discussion so that the reader will be aware of the many complex and debatable issues that remain unsettled. We conclude with a glimpse into the future.

As we look back, it was the mothers of premature infants who first kindled our interest by showing us that there were difficult problems of attachment after a separation. Our early curiosity was supported and encouraged by thoughtful nurses (especially Jane Cable) who shared their experiences and were willing to take what seemed at the time a hazardous step of allowing parents to enter the monastic doors of the nursery. We gained a richer and deeper understanding of what was going on in the minds of parents of premature infants through long discussions with colleagues in the behavioral sciences (Cliff Barnett, Mary Bergen, Douglas Bond, Anna Freud, Rose Grobstein, Herb Leiderman, Litzie Rolnick, Benjamin Spock).

We were helped immeasurably with our own investigations by the critical suggestions and provocative questions from other investigators concerned with maternal and paternal behavior. Our special thanks go to T. Berry Brazelton, Harry Gordon, Raven Lang, Julius Richmond, Jay S. Rosenblatt, and the late William Wallace.

We have been especially fortunate to work side by side with a series of bright, inquisitive, refreshing medical students who worked long hours and asked searching questions. Each of the medical students made unique contributions. We thank Gail Bongiovanni, David Chesler, Wendy Freed, David Gordon, Guillermo Gutierrez, Deborah Jean Hales, Rick Jerauld, Chris Kreger, John Lampe, Betsy Parke Macintyre, Willie McAlpine, Nancy Plumb, Howard Slyter, Meredith Steffa, Harriett Holan Wolfe, Steve Zuelke, and the many patient and conscientious research associates who made our studies possible, most recently Billie Navojosky and Diana Voos.

Throughout our studies we have been fortunate to have the benefit of the ex-

perience and counsel of Joseph Fagan, Robert Fantz, and Simón Miranda, in the Perceptual Development Laboratory of the Department of Psychology. Special thanks should be given to our department Chairman, Dr. Leroy Matthews, who has been most thoughtful about arranging time to prepare this work.

We would like to acknowledge the expert secretarial assistance and devoted efforts of Janet Negrelli, Jackie Stimpert, and Elizabeth Wilber. Editorial work on the book was started by our former associate Robin White, and then as efforts to complete the book intensified in the final months, skillful help was provided by Alisa Klaus, Laurie Krent, and Susan Schafer.

Our close friend, colleague, and counselor Dr. Avroy Fanaroff has supported and assisted us while we have conducted most of our studies. Since 1973 we have had a highly productive association with our colleague, advisor, and critic Mary Anne Trause. Susan Davis, Dennis Drotar, Nancy A. Irvin, Betsy Lozoff, and Norma Ringler have provided special skills and knowledge for some of our studies. In Guatemala our investigations could never have been carried out were it not for the suggestions and leadership of Drs. Leonardo Mata, Roberto Sosa, and Juan Urrutia, the extremely conscientious and devoted work of research field workers Patricia Baten, Marta Isabel Garcia, Rubidia Méndez, and Olga Maricela Ochoa, and especially the collaboration and expertise of Prof. Gustavo Castaneda and the personnel at Roosevelt and Social Security Hospitals.

Our work would not have been possible without the generous support of the Grant Foundation, the Educational Foundation of America, Maternal and Child Health Grant MC-R-390337, NIH 72-C-202, and the Research Corporation.

Marshall H. Klaus
John H. Kennell



The infant who appeared on the cover of the first edition of this book has grown into a happy, healthy child.

PARENT-INFANT BONDING