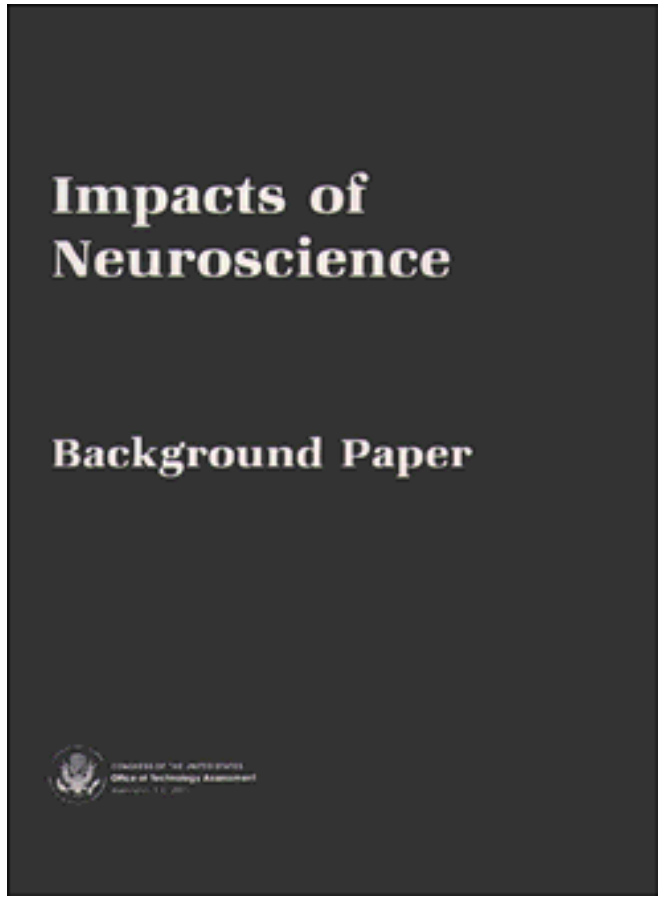
Impacts of Neuroscience

March 1984

NTIS order #PB84-196716



Recommended Citation:

Impact of Neuroscience—A Background Paper (Washington, D.C.: U.S. Congress, Office of Technology Assessment, OTA-BP-BA-24, March 1984).

Library of Congress Catalog Card Number 84-601020

For sale by the Superintendent of Documents
U.S. Government Printing Office, Washington, D.C. 20402

Preface

Neuroscience is one of the fastest growing areas of scientific inquiry in biology. This background paper, prepared by OTA with significant contribution by the Congressional Research Service, surveys the scientific basis of research on the nervous system, identifies several medical applications, examines some of the social effects, and discusses some of the difficult ethical and political issues that may arise from discoveries in neuroscience.

This paper is part of an assessment of ***Technology and Aging in America*** that was requested by the Senate Special Committee on Aging, the House Select Committee on Aging, and endorsed by the House Committee on Education and Labor. The paper arose naturally from inquiry into diseases and conditions that affect the health of older Americans. Neuroscience research has led to new treatments for major causes of death in both the developed world (cardiovascular disease and stroke), and developing nations (parasitic diseases), in addition to advancing knowledge about neurological and psychiatric disorders. In the United States, the aging of the population provides one of the strongest incentives for research on the nervous system, because of the burden of illness imposed by several mental and organic brain disorders that become increasingly common with age, such as depression, insomnia, and Alzheimer disease.

Alzheimer disease alone affects more than 1 million Americans, and causes severe financial and emotional stress on each family that it affects. Alzheimer disease is one of the most significant causes of need for long-term care in the United States. One of the most important motives driving neuroscience research is the desire for solutions to the ravages of brain diseases like Alzheimer disease. * This background paper focuses on the status of basic neuroscience research, and was extended, in accordance with the OTA mandate, to investigate not only the current status and potential medical applications, but also to include broad social and ethical issues that might arise from such research.

● More detailed discussion of Alzheimer disease and related disorders will be found in the OTA assessment *Technology and Aging in America* to be published subsequently.

OTA Impacts of Neuroscience Staff and Contractors

H. David Banta* and Roger Herdman, * * ***Assistant Director, OTA***
Health and Life Sciences Division

Gretchen S. Kolsrud, ***Biological Applications Program Manager***

David McCallum, ***Project Director, Technology and Aging in America, June 1982-September 1983***

Robert Harootyan, ***Project Director, Technology and Aging in America, since September 1983***

Robert Mullan Cook-Deegan, ***Study Director, Congressional Science Fellow***

Miriam Davis, ***Environmental Sciences Fellow, September 1982-September 1983***
Congressional Research Service, Library of Congress

Project **Staff**

Eleanor Pitts

Principal Contractors

George Adelman Stephanie Bird Stanley Molner Eleanor Pitts

Principal Edito~ Impacts of Neuroscience

Rebecca A. Bean

Editon Technology and Aging in America

Phyllis Avedon

Staff Reviewers

James Thomas Susan Clymer Louise Williams

Nanette Newell Debora Burch Robert Harootyan

Special Contributor

Michael Simpson, ***Congressional Research Service***

Support Staff

Elma Rubright Fatimah Scott

OTA Publishing Staff

John C. Holmes, ***Publishing Officer***

John Bergling Kathie S. Boss Reed Bundy Debra M. Datcher

Joe Henson Glenda Lawing Linda A. Leahy Cheryl J. Manning

"Until August 1983.
•● From Dec. 26, 1983,