Handbook of
Psychopharmacology

Volume 19

New Directions in Behavioral Pharmacology

Handbook of Psychopharmacology

SECTION I: BASIC NEUROPHARMACOLOGY

- Volume 1 Biochemical Principles and Techniques in Neuropharmacology
- Volume 2 Principles of Receptor Research
- Volume 3 Biochemistry of Biogenic Amines
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Volume 19

New Directions in Behavioral Pharmacology

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PLENUM PRESS • NEW YORK AND LONDON

Library of Congress Cataloging in Publication Data

New directions in behavioral pharmacology.

(Handbook of psychopharmacology; v. 19)

Includes bibliographies and index.

1. Neuropsychopharmacology. I. Iversen, Leslie L. II. Iversen, Susan D., 1940-
III. Snyder, Solomon H., 1938-. IV. Series. [DNLM: 1. Behavior—drug effects. 2.
Neuropharmacology. 3. Psychopharmacology. QV 77 H236 sect.5 v.19]

RM315.H345 1975 vol. 19 615'.78 s 87-2551
[615'.78]

ISBN-13: 978-1-4612-9017-9 e-ISBN-13: 978-1-4613-1819-4

DOI: 10.1007/978-1-4613-1819-4

© 1987 Plenum Press, New York

Softcover reprint of the hardcover 1st edition 1987

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233 Spring Street, New York, N.Y. 10013

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PREFACE

Volumes 7 and 8 of the *Handbook* were published in 1977. In Volume 7 methods for studying unconditioned and conditioned behavior were reviewed. Attention was given to both ethological methods and operant conditioning techniques as applied to some selected aspects of behavior. Genetic, developmental, and environmental factors influencing behavior were also discussed. In Volume 8, neurotransmitter systems, and in particular brain circuits, were discussed in relation to behavior and to the effects of psychoactive drugs on behavior. The coverage was not exhaustive because of space limitations. The topics selected for review were, at the time, the focus of considerable experimental effort; they included homeostasis-motivated behaviors: sleep, locomotion, feeding, drinking, and sexual behavior. Brain dopamine systems were therefore discussed in depth, since they were already known to be centrally involved in motivated behaviors. Learning mechanisms and emotion were reviewed in the remaining chapters.

In 1984 we initiated an update of behavioral pharmacology to review areas of progress within the same scope as the earlier volumes. This update continues in Volume 19. Among the contributions are several that represent important advances in analyzing behavior and the use of more sophisticated methods to define the effect of drugs on particular aspects of behavior. The chapters by Blundell on feeding and Miczek on aggression illustrate the sophistication of modern ethopharmacology. Conceptual advances have also been made, but it is important to realize that computer analysis of patterns and sequences of responses has opened up a new era in ethology.

The effects of drugs on behavior depend not only on their neuropharmacological properties but also on the age and state of development of the animal (see the chapter by Young), and are influenced by the ongoing behavior and drug history of that animal. The latter topic has become an extremely important one, since it is now clear that animals learn about

drug experiences in much the same way that they learn about other stimuli in their environment (see the chapter by Stewart and Eikelboom).

The last decade has seen the identification of a large number of neuropeptides as CNS chemical messengers. In this area, work on the opiates and the issue of peptide involvement in memory were selected for review, since it is in these two areas that substantial progress has been made in understanding the modulatory role of peptides for integrative CNS activity. The future will, it is hoped, bring novel drugs to influence peptide function in CNS.

Finally, the behavioral effects of some of the classical psychotropics, such as nicotine, antidepressants, neuroleptics, and anticonvulsants, are receiving renewed attention as more is discovered about their neuropharmacological sites and modes of action in the CNS. Novel drugs to treat the major neurological and psychoactive conditions continue to be sought, since many of the existing ones have unwanted side effects.

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