MEMORY AND TRANSFER OF INFORMATION

Edited by H.P. Zippel

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Physiologisches Institut der Universität Göttingen, West Germany Proceedings of a symposium sponsored by the MERCK'SCHE GESELLSCHAFT für KUNST und WISSENSCHAFT held at Göttingen, May 24-26, 1972

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My special gratitude is extended to my assistant Mrs.
U. LINAREZ for her kind aid before and during the Symposium,
to Mr. A. BURT for his friendly assistance in correcting
the manuscripts and to Miss Ch. EINECKE for her careful
typing of the same.

Finally, the editor wishes to express his thanks to the participants of the Symposium for supplying their manuscripts so promptly and thus ensuring rapid publication of the Proceedings.

PRFFACE

The contents of this book are the presentations of a Symposium on "Memory and Transfer of Information", held at Göttingen, May 24-26, 1972.

One of the main reasons for organizing this Symposium was to stimulate interdisciplinary discussion between scientists working in the field as a whole. Most of the previous meetings dealing with memory and transfer of information have tended to be rather limited in scope. The present Symposium covered a wide range of topics, including neurophysiological, neuropharmacological, neurochemical, behavioral and clinical aspects of learning and chemical transfer of information, presented by specialists in these areas.

The Proceedings of the meeting present a large number of previously unpublished results, e.g., recent experiments in neurophysiology and neurochemistry, new approaches to chemical transfer of learned information, experiments using synthetic scotophobin and drugs influencing learning and behavior. The importance of interdisciplinary discussion is perhaps most clearly emphasized by the advances in neurochemical micromethods which are of particular interest to scientists working on the chemical transfer of information. Only such interdisciplinary collaboration between highly specialized scientists guarantees further progress and deeper insight into the complex, and until now little understood, mechanisms of that most intricate of organs, the brain.

Hans Peter ZIPPEL

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- Paper presented at the Symposium but not included in the book
- ** Paper included in the book but not presented at the Symposium

OPENING ADDRESS

On behalf of E. Merck I should like to welcome you most cordially to the Symposium "Memory and Transfer of Information". I am very grateful that you were willing to accept our invitation to participate in the discussion on this highly interesting field of current research. My special thanks are due to Dr. Zippel for his efforts and the organisational work necessary to assemble this prominent group of experts here today.

I need not remind you of the purpose and necessity of a Symposium on Memory and Transfer of Information. We are all aware that in recent years new neurobiological knowledge concerning input, processing and storage of information in the central nervous system, has resulted in very encouraging progress in this field. Thanks to neurophysiology and especially to neurochemistry, the problem of memory begins to show tangible contours for the first time.

I believe that during such a phase of scientific evolution, personal contact within a small group of successful investigators may be of decisive importance. These days in Göttingen will not only enable you to learn more about the latest research developments from other laboratories and clinics, but you will also have an opportunity to discuss them among yourselves. I am very grateful indeed that our colleagues from Merck's Research Division (Darmstadt, W. Germany), who have been interested in this field for a number of years, are also able to participate.

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I hope that this Symposium will be a success and, in addition to an inventory of our knowledge, will produce new impetus and ideas for research. Most probably, learning and learning ability will have a decisive effect on the fate of our society and of humanity. Let us hope that the prophecy of Bovet will be fulfilled:

"Je pense que nous pourrons donner à l'humanité dans le futur prochain quelque chose pareil à un élixir d'esprit ou aux pilules de mémoire".

Professor Dr. J. THESING Vice President of Research

NEUROPHYSIOLOGY, NEUROPHARMACOLOGY AND BEHAVIOR

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H. MÜLLER-CALGAN, K.H. BECKER, H.J. ENENKEL, H.J. SCHLIEP and A.J.N. WILD

Keywords: sensitivity (pain), sex differences, strain differences, strain reactivity (against: amphetamine, cataleptics, central muscle relaxants, cholinergics, convulsants, isoprenaline, narcotics, norepinephrine, tetrabenazine, tremorine), strain reactivity in tests (adjuvant arthritis, exploration, pain)

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G.D. EDJTEHADI and D. PALLOT

Keywords: hindlimb muscle (cat, kitten), motor nerve axons (number of, diameter), motor unit, muscle (soleus, FHL), muscle fiber (diameter, age dependency), polyneuronal innervation, synaptic plasticity, tetanic tension (contraction), twitch muscle