

Proceedings of a
Symposium on Experimental
"Allergic" Encephalomyelitis and
Its Relation to Other Diseases of
Man and Animals

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"ALLERGIC" ENCEPHALOMYELITIS

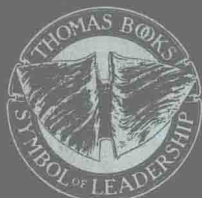
CONTRIBUTORS: 60 investigators from all over the world distinguished for significant work in pathology, immunology, neurology, and biochemistry.

They examine critically whether any or all of these can really be considered due to allergic reaction.

They evaluate the possible relation of these disorders to each other and to other diseases, such as multiple sclerosis.

PURPOSE: To assemble all available data on experimental "allergic" encephalomyelitis in a readily accessible form which would be of use to scientific workers in experimental neurology and related fields (neurochemistry, immunology and neuropathology). The material included will serve as a basis for future work on the pathogenesis and etiology of various neurological disorders.

Discussions built around twelve prepared speeches represent the heart of the book. Authorities in other fields, including most of those who have contributed to our knowledge of these diseases as well as many who are relatively unbiased by personal work in this field, participated. The discussions of each paper are recorded verbatim, edited to make readable, and brought up to date by many of the conferees since the symposium.



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“Allergic” Encephalomyelitis

*Proceedings of a Symposium:
Experimental “Allergic” Encephalomyelitis
and its Relation to Other Diseases
of Man and Animals*

Edited by

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Preface

SINCE THE DEVELOPMENT of Freund's adjuvants much work has been done in experimental animals with nervous system "antigens" in attempts to elucidate the etiology and pathogenesis of various neurological disorders seen more or less commonly in human beings. The experimental investigations have involved scientists in many widely separated disciplines: biochemistry, immunology, pathology, microbiology, clinical and veterinary medicine, etc., and subspecialties of each too numerous to list. The published relevant material has been scattered, therefore, in many different journals and books. At national and international meetings it quite often happens that related papers are presented almost simultaneously in different rooms! It has thus become increasingly difficult for investigators to keep current with studies by others.

The opportunity to hold a symposium on "Experimental 'Allergic' Encephalomyelitis and its Relation to Other Diseases of Man and Animals" was warmly received by everyone contacted by the Committee on Arrangements. On behalf of all who attended, we wish to express our grateful appreciation to the National Advisory Neurological Diseases and Blindness Council and the National Institute of Neurological Diseases and Blindness for their sponsorship. We wish to thank Smith Kline & French Foundation for an additional grant to help defray the travel expenses of our distinguished foreign visitors who would not otherwise have been able to participate in the symposium.

We regret that illness kept several individuals from attending, especially Drs. Jules Freund, Lewis D. Stevenson, Hilary Koprowski, and David Cowan.

A word should be said about the quotation marks around the word *allergic*. We had hoped that enough information would be available to enable us either to remove the quotation marks or to replace the word allergic by a more appropriate word. Unfortunately, we do not yet know the mechanism whereby the experi-

mental disease is produced. Since the term *allergic encephalomyelitis* has been so widely used, we have kept it. The use of quotation marks, however, is repetitious and distracting of attention to other aspects of the disease, so that we have generally omitted them except when a deliberate attempt is being made to call attention to the fact that the pathogenesis is not yet known. The term "*allergic*" *encephalitis* is used only colloquially as a means of identifying the disorder and distinguishing it from other reactions.

Another convention which we have found convenient is the use of an *asterisk* after a speaker's name in the discussion, to identify remarks not made at the symposium but inserted afterwards. We have tried thereby to protect the interests of everyone and have circulated the additional comments to those conferees most directly concerned for rebuttal or agreement. Otherwise the discussions are essentially as given at the symposium which was held at Stone House, National Institutes of Health, Bethesda, Maryland, on October 19 and 20, 1957.

We would like finally to thank the conferees for their help in the editing of their comments; to thank the other members of the Committee on Arrangements* and the chairman of the various sessions for their assistance in planning the symposium; and to thank our secretaries, especially Mrs. Patricia Pelleu and Mrs. Dorothy de Silva, for their unfailing assistance in the preparation of the manuscript, and Mrs. Marie Denton for assistance in preparing the index.

MARIAN W. KIES

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“ALLERGIC” ENCEPHALOMYELITIS

I. CLINICO-PATHOLOGIC CORRELATIONS

CHAIRMAN, ABNER WOLF, M.D.

Columbia University
New York, New York

Introductory Remarks

DR. MASLAND: I am glad to welcome you to the National Institutes of Health for this conference.

You have already contributed materially to our knowledge of this important field of neurology. It is anticipated that this conference will serve not only to summarize the present status of our knowledge in this fascinating new development, but also to provide new leads or new ideas, and to suggest the probable course of future work.

Certainly it should be a valuable stimulus to those of you who are here, as well as to other investigators. All of us are grateful to you who are giving your time and interest to attend this conference and to contribute to it.

I should also like to express appreciation to the Committee on Arrangements who have made it possible for us to get together.

I will turn the meeting over now to Dr. Abner Wolf.

DR. WOLF: The first portion of the meeting, as you can see from the program, is devoted to a recapitulation of that which we know about the morphology of experimental allergic encephalomyelitis.

We must determine whether this gives us sufficient grounds for deciding that the human demyelinating diseases may be of the same etiopathogenesis, and if we do so, devise additional methods to probe this experimental disease further with two things in mind: to clarify the pathogenesis of the experimental disease, and to determine how this may aid us in our understanding of human diseases.

Chapter 1

Considerations on the Neuropathologic Pleomorphism and Histogenesis of the Lesions of Experimental Allergic Encephalomyelitis in Non-human Species

(Comparative Morphologic and Histochemical Studies)

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DURING RECENT YEARS several reports and reviews of the clinical and neuropathologic aspects of experimental allergic encephalomyelitis (EAE) have been reported in the medical literature (1-16).

The present report deals with a review of the pertinent literature and accumulated material in our department of Neuropathology over a period of 18 years.

MATERIAL AND METHODOLOGY

Our presentation is based on selected *post mortem* and biopsy material obtained from a total of 536 experimental animals.

The following neuropathologic techniques were used: Weigert, Spielmeier and Weil methods for myelin sheaths; Roizin's combined method for myelin and lipoid products of myelin disintegration; Bielschowsky and Bodian silver impregnation techniques for axon cylinders; Cajal's gold sublimate impregnation and Holzer's methods for astroglia and glia fibrils; Hortega's silver carbonate impregnation for oligodendroglia and microglia; Sudan III, Scarlet R, Oil Red, Sudan Black, Smith-Dietrich and Lorrain-Smith for fat products. Some histochemical studies were