

WORLD HEALTH ORGANIZATION

MONOGRAPH SERIES

No. 20

INFLUENZA

A Review of Current Research

INFLUENZA

A Review of Current Research

CONTRIBUTORS

C. H. ANDREWES — Sir Macfarlane BURNET — Z. DEUTSCHMAN
Thomas FRANCIS, jr. — Ross L. GAULD — M. R. HILLEMANN — Pierre LÉPINE
Preben von MAGNUS — J. MULDER — A. M.-M. PAYNE
C. H. STUART-HARRIS — Jacqueline H. WERNER

WORLD HEALTH ORGANIZATION

PALAIS DES NATIONS

GENEVA

1954

These papers were originally published in the *Bulletin of the World Health Organization*, 1953, 8, 591-824. A French edition, to be published in the *Organisation Mondiale de la Santé : Série de Monographies*, is in preparation.

NOTE

*Authors alone are responsible for views
expressed in the Monograph Series of the
World Health Organization*

The mention of manufacturers' products does not imply that they are endorsed or recommended by the World Health Organization in preference to others of a similar nature which are not mentioned.



CONTENTS

	Page
Introduction	7
EPIDEMIOLOGY	
Epidemiology of influenza— <i>C. H. Andrewes</i>	9
Influenza antibodies in the population of the USA: an epidemiological investigation— <i>M. R. Hilleman, Jacqueline H. Werner & Ross L. Gauld</i>	25
Trend of influenza mortality during the period 1920-51— <i>Z. Deutschman</i>	43
VIRUS	
The influenza virus : its morphology, immunology, and kinetics of multiplication— <i>Preben von Magnus</i>	55
Recent work on the intrinsic qualities of influenza virus : somatic and genetic aspects— <i>Sir Macfarlane Burnet</i>	67
Laboratory methods in the study of influenza virus— <i>Pierre Lépine</i>	87
CONTROL	
Vaccination against influenza— <i>Thomas Francis, jr.</i>	125
Influenzal pneumonia : causation and treatment— <i>J. Mulder & C. H. Stuart-Harris</i>	141
The influenza programme of WHO— <i>A. M.-M. Payne</i>	151
ILLUSTRATIONS	
BIBLIOGRAPHY	
Select bibliography on influenza— <i>A. M.-M. Payne</i>	189
INDEX	

INTRODUCTION

In fulfilling its constitutional role as the directing and co-ordinating authority on international health work, the World Health Organization has since its inception devoted considerable attention to the problems of influenza. Its Expert Committee on Influenza has recently been considering* how best to promote international collaboration in the control of this disease, while since 1947 the WHO influenza programme, details of which will be found in an article by Dr. A. M.-M. Payne in this volume, has been developing rapidly. Under this project 54 laboratories in 42 countries have voluntarily co-operated in an international programme of research, which could not be undertaken on this scale in any other way.

It must be recognized, however, that fundamental research and the development of new techniques, at least in their initial stages, are best carried out through private or institutional initiative; almost all significant scientific advances in the past have sprung from such efforts. The role of WHO is to facilitate this work by various means—for example, by collecting and distributing epidemiological information and laboratory findings on an international scale; by promoting the rapid exchange of scientific information among the various workers throughout the world; by providing for the training of specialized workers; and by supplying standard diagnostic reagents and other laboratory needs. All these activities are currently being undertaken by WHO.

The production of this monograph falls within the second category, that of promoting the exchange of scientific information. Many workers have not the time to read the vast literature on influenza, even if they have access to a large well-stocked library, which is not always the case. By bringing together in one volume reviews of various aspects of this complex and fascinating subject, written, at special invitation, by some of the world's leading authorities who through their own work have contributed so greatly to our knowledge, it is hoped to bring to influenza workers the latest information, to show them where further detail can be found, and to stimulate those engaged in routine work to step out into the field of research.

These articles have a practical value. Those on the epidemiology of influenza by Dr. C. H. Andrewes, and on influenza virus vaccines by Dr. T. Francis, jr., will help public-health authorities to understand the

* *World Hlth Org. techn. Rep. Ser.* 1953, 64

problems of the correct use of vaccines. The paper on the causation and treatment of influenzal pneumonia by Professor J. Mulder and Professor C. H. Stuart-Harris will be of value to all clinicians. The article by Sir Macfarlane Burnet on the somatic and genetic aspects of the influenza virus, and that by Dr. P. von Magnus on its morphology, immunology, and kinetics of multiplication, will surely awaken a desire to undertake the fundamental research which is so essential to progress. The laboratory worker will acquire valuable technical information from the article by Professor P. Lépine, and both epidemiologists and virologists will find much to interest them in the paper on influenza antibodies in the population of the USA by Dr. M. R. Hilleman and his colleagues, as well as in the statistical article by Mr. Z. Deutschman. Finally, a classified bibliography has been provided to help workers to explore recent literature. It is not meant, however, to be complete in itself, and is complemented by the reference lists of the individual papers.

This monograph is not intended to replace the textbook : much that can readily be found in the standard works has been deliberately omitted. It is rather both complementary and supplementary to the textbook, covering the most important aspects of recent advances, and offering a range of speculation beyond the province of the orthodox textbook.
