R O S E N A U

PREVENTIVE MEDICINE

AND

PUBLIC HEALTH

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With 27 contributing authors

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MATERNAL HEALTH

Preface

With publication of this new eighth edition of Rosenau, which has come to be regarded as a classic in its field, we are retitling it in the belief that the word *Hygiene* no longer connotes its range, and that this new title, *Preventive Medicine and Public Health,* will more adequately indicate the scope and purposes of the book which are unchanged.

The subject matter has been critically reviewed and revised in the light of recent findings by each contributing author whose name appears with his section. The editor is responsible for the remainder. To bring the book up to date, 634 pages, or 44 per cent, of the text in the previous (1951) edition have been rewritten either completely or in part. Recent figures have been incorporated in the text and statistical tables. Where recent contributions have advanced knowledge or concepts during the past five years selected references have been added to document the work and afford the reader opportunity to pick up the thread of current investigations or changes. The index has been greatly enlarged and it is more detailed in its coverage.

To understand the selection of subject matter it is necessary to know the past history of this book. When the first edition was published in 1913, Dr. Milton J. Rosenau, then Professor of Preventive Medicine at the Harvard Medical School, opened his preface with the following words: "This book has been written in response to a demand for a treatise based upon modern progress in hygiene and sanitation. The work is planned to include those fields of the medical and related sciences which form the foundation of public health work. So far as I know no other book on the subject covers the broad field considered in this volume. The progress in hygiene and sanitation has been so rapid that the subject of preventive medicine has become a specialty, and its scope has become so broad that the question throughout the making of this book has been rather what to leave out than what to include. The facts here brought together are widely scattered in the literature and many of them difficult of access; they have been collected for the student of medicine and the physician, as well as those engaged in sanitary engineering or public health work."

In five subsequent editions, with the help of collaborators, Dr. Rosenau kept up with the progress in this rapidly developing field. His sixth and last edition was published in 1935. Approaching the end of a rich and fruitful career, he thought that it was time the burden be passed on to some younger colleague. So it was that this textbook came under the present editorial supervision and the seventh edition appeared in 1951. In the sixteen years that had elapsed since publication of the sixth edition by Rosenau there had been remarkable scientific and practical advances in the field of public health and preventive medicine. While it was possible to retain some parts of the old text with little change, it was necessary to revise or rewrite large parts and to introduce much new material. Furthermore, to fulfill its function adequately it was necessary to enlist collaboration with a wider range of specialists. So the seventh edition became a joint contribution of some 27 authors. Inevitably, there was some overlapping of subject matter, but effort was made to

reduce this to a desirable minimum by cross references in the text, emphasizing interrelationships.

Grateful acknowledgement is made of the assistance rendered by collaborators in bringing about this revision. I am immeasurably indebted to Mrs. Margaret R. McConnell whose efficient editorial assistance has made this edition possible. I wish also to thank Mrs. Hermine Bird for reading proof and checking references. Finally, it is a pleasure to again express my appreciation to Appleton-Century-Crofts, Inc., particularly to Mr. George A. McDermott and his staff, for constructive interest and editorial guidance.

KENNETH F. MAXCY

PREVENTIVE MEDICINE

and

PUBLIC HEALTH

TIME INTERVALS

IMMEDIATELY AFTER VACCINATION

ONE HOUR

TWO DAYS

FOU

NEGRO

WHITE

PRIMARY VACCINATION REACTION

INDICATING NO PREVIOUS IMMUNITY

VACCINOID REACTION

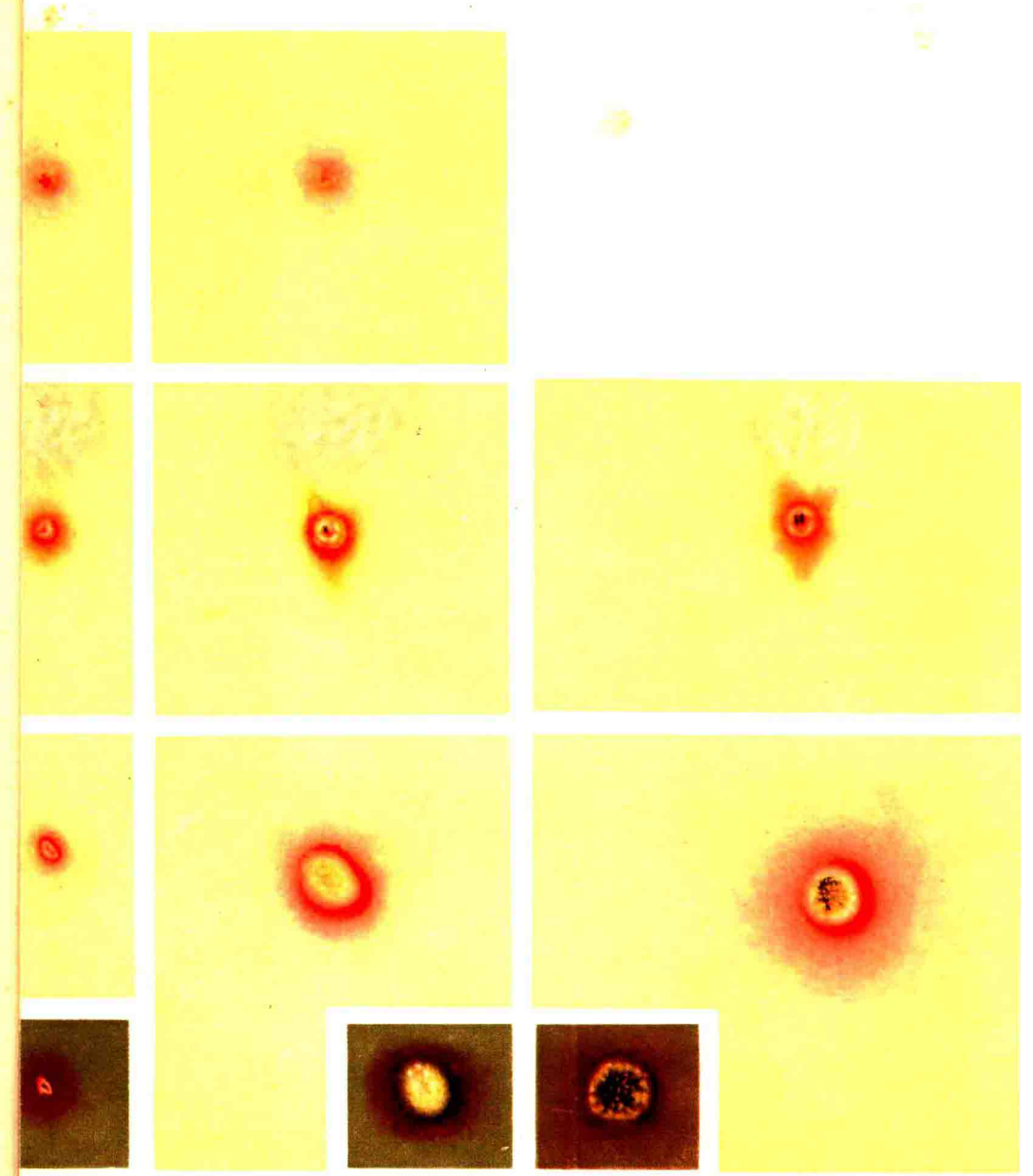
INDICATING PREVIOUS PARTIAL IMMUNITY

IMMUNE REACTION

INDICATING PREVIOUS IMMUNITY

REA

ACTIONS TO SMALLPOX VACCINATIO

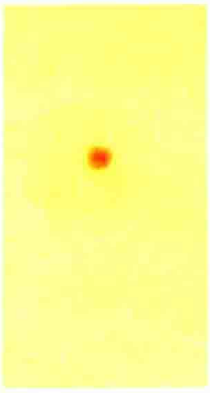


UR DAYS

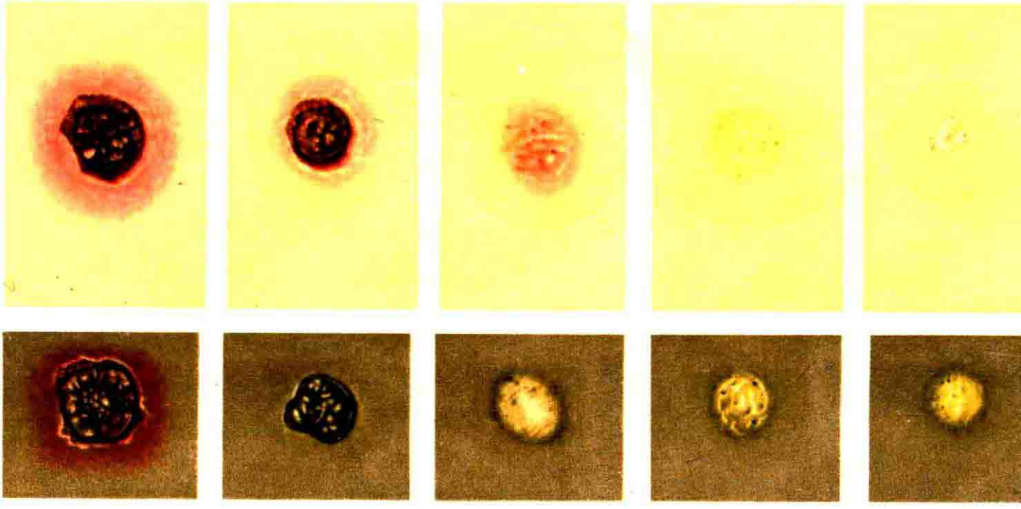
ONE WEEK

NINE DAYS

N



These colored records represent a careful selection of the standard types of reactions which follow smallpox vaccination. They were painted from life by Leon Schlossberg, pupil of Max Brodel, in the Department of Art as Applied to Medicine, in the Johns Hopkins Medical School.



TWO WEEKS THREE WEEKS TWO MONTHS ONE YEAR TWO YEARS

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CONTENTS

Section One
PREVENTION OF COMMUNICABLE DISEASES

1

CONTAGIOUS DISEASES SPREAD LARGELY FROM THE MOUTH AND NOSE

The beginnings of hygiene can be traced back to antiquity in the sanitary laws of the Hebrews. Preventive medicine began with the first primitive idea of contagion. Even in the time when epidemics were explained as due to the wrath of the gods or visitations of evil spirits, it was observed that certain illnesses apparently spread from person to person. Gradually, the idea of contagiousness was associated with a number of diseases. Fracastorius, in his book De Contagione, published in 1554, proposed a classification of diseases into those which were contagious and those which were not. For three centuries following this publication the medical profession was divided into two camps: the non-contagionists, who believed that the causative agents of epidemic disease were inanimate and gaseous in nature and associated with emanations from decomposing organic matter, effluvia and miasma; and the much smaller group, the contagionists, who identified contagiousness with germs of some kind.

Looking backward, this confusion is understandable. That some diseases were contagious was fairly obvious, but some apparently arose spontaneously without a traceable source. The confusion was finally resolved in the latter part of the nineteenth century by the work of Pasteur, Koch, and their followers. The causative relationship of specific micro-organisms for one after another of the infectious diseases was established and the part played by carriers, missed cases, common water and food supplies, arthropod vectors, and animal reservoirs in transmission was gradually elucidated.

With these advances in knowledge came the vision of the possibilities of prevention of disease by community measures. Health departments were organized very largely for the purpose of controlling the spread of communicable diseases by isolation and quarantine, sanitation, immunization and diagnostic services. It was not until after the turn of this century that they became concerned with the broader aspects of preventive medicine. It is appropriate, therefore, that this book begin with a discussion of communicable diseases. Furthermore, it is also appropriate, since our interest is primarily in prevention, to classify these diseases on the basis of the principal mode of transmission. The first to be considered and most important from the point of view of the mortality and morbidity which they cause the world over, are those contagious diseases spread largely by discharges from the nose and mouth. While alike insofar as they are caused by microparasites which enter and leave the human host through the respiratory tract, they differ in many ways. These invaders are of various genera and species: viruses, rickettsiae, bacteria and fungi. There is a wide range in their potential pathogenicity both for the individual and