In the 50 years since the inception of the *Society for General Microbiology*, the study of pathogenic microbes and the development of methods for their control have been a focus of attention for many microbiologists. This volume reviews the immense progress which has been made during the past half-century, opening with the text of Sir Alexander Fleming's 1946 Linacre Lecture 'Chemotherapy: yesterday, today and tomorrow', and then drawing together contributions which consider the development of key antimicrobial compounds, both naturally occurring and synthetic, active against bacteria, viruses, fungi and protozoa. The broader issues of antimicrobial production, screening, improvement and resistance are also considered. Topics such as why epidemics still occur, and the need for new antibiotics, highlight the fact that, despite the advances, the fight against infection continues unabated.

FIFTY YEARS OF ANTIMICROBIALS: PAST PERSPECTIVES AND FUTURE TRENDS

SYMPOSIA OF THE SOCIETY FOR GENERAL MICROBIOLOGY

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EDITED BY

P. A. HUNTER, G. K. DARBY
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EDITORS' PREFACE

It seems particularly apt that, on the occasion of the 50th anniversary of the institution of the Society for General Microbiology, the topic of this Symposium should concern antimicrobials, since the first President of the Society was none other than Sir Alexander Fleming. In the Linacre Lecture delivered at Cambridge on May 6th 1946, entitled 'Chemotherapy, yesterday, today, and tomorrow', and reproduced in full in this volume, Sir Alexander said:

> '. . . in the last ten years, more advances have been made in the chemotherapy of bacterial infections than in the whole history of medicine.'

What of more recent progress? In 1985, the topic of the 38th SGM Symposium was *The Scientific Basis of Antimicrobial Chemotherapy*, and the editors (Greenwood and O'Grady) refer in their preface to the 'extraordinary advances' made in the field since a previous Symposium in 1967. They also, however, commented that, in spite of these advances in scientific knowledge,

> '. . . the major burden of untreated infection is carried by the Third World; and . . . that the spectacular successes of antibacterial agents have not been matched by equal improvements in the armamentarium of drugs active against protozoa, helminths, fungi and viruses, agents of disease that, on a global scale, far outweigh bacteria in importance.'

Sadly, this is a theme which recurs in this volume, as we see again that the economically deprived developing countries still bear the burden of numerous infections. With some microbial pathogens, even where good targets have been identified and active compounds found, the cost of developing such agents is frequently considered uneconomic. There are numerous references in this volume to the development of resistance by diverse microbes to many antimicrobials; this may be connected with the over-use or inappropriate use of antimicrobial agents.

Currently, concern is also being expressed over the re-emergence of infections previously believed to have been controlled adequately, and although some infections such as smallpox have been eradicated, there are still epidemics of other microbial infections both in developed and less developed countries. Frequently, these epidemics and recrudescences of older pathogens are seen to be related to the economic status of the population at risk. The spread of AIDS and the increasing numbers of immunocompromised patients worldwide have changed, and continue to change the spectrum of infectious disease organisms. In addition, the

problems in treating these patients with inadequate immune systems have emphasized deficiencies in many of the available drugs. It would seem that, whenever the scientists believe that they have conquered the microbe, the microbes have unerring capacities to fight back.

Against such a historical backcloth, it is the intention of this celebratory Symposium (and book) to consider the progress made during the past half-century across a wide field of antimicrobials, both naturally occurring and synthetic, including biocides, that are active against bacteria, viruses, fungi and protozoa. It is impossible to be comprehensive, but, instead, important representative examples are the subject of individual contributions. Others focus on broader issues of antimicrobial production, screening and improvement, on resistance, on why epidemics still occur, and on whether new antibiotics are needed.

It is hoped that this information will provoke and stimulate researchers in academia, industry and medicine, who are involved directly or indirectly in the battle against infection, to discover novel, more efficient antimicrobials. The ever-fluctuating balance between pathogenic microbes and man demands periodic re-appraisal: as we approach a new century, it is timely to consider what can be learned from the explosive growth in antimicrobials since the first clinically useful antibiotic, penicillin, was introduced at about the same time as the Society for General Microbiology was born.