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INSECTICIDE RESISTANCE IN ARTHROPODS

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PREFACE

The twelve years that have elapsed since the publication of the first edition of this monograph have witnessed great changes in the problem of insecticide-resistance in arthropods. In 1958, for example, 35 species were known to have developed resistance, 4 of them to the organophosphorus insecticides; today, however, the total number of resistant species has reached 104, of which no less than 18 have developed resistance to the organophosphorus compounds.

If the problem has increased, so has our understanding of it. Resistance in the field, which 12 years ago was largely a matter of opinion, has—with the introduction of standard test methods—become a measurable quantity. These standard methods have been used for thousands of determinations of resistance levels in all parts of the world. Greater understanding of the nature of resistance has also been achieved, and it has become generally realized that resistance results from a change in the genotype composition of an insect population induced by the selection pressure exerted by insecticides.

This increased understanding has, in turn, had practical effects on insect control programmes. When resistance develops to a given insecticide, spraying with that insecticide is no longer continued, but a change is made to a different compound. Such changes usually involve the substitution of an organophosphorus compound for a chlorinated hydrocarbon. However, such substitutions can be fully successful only if based on understanding of the resistance situation and on knowledge of what new compounds are most likely to be effective.

In view of these many new developments, the World Health Organization invited Dr A. W. A. Brown and Dr R. Pal to undertake the preparation of a second edition of this monograph. The text has been thoroughly revised and much new material has been added. The objective, however, remains the same as that of the first edition—namely, to provide a means whereby workers in the field may have access to virtually all the literature relevant to insecticide-resistance in insects of public-health importance.

