

# Population Genetics

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TERTIARY LEVEL BIOLOGY

# Population Genetics

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# Preface

POPULATION GENETICS IS OFTEN THOUGHT TO BE A DIFFICULT SUBJECT. To some extent, difficulties are inevitable in a field where some quite basic points are controversial. However, problems are most acute when theoretical points are discussed, despite the fact that there has been very little controversy over the mathematics. In my experience, the actual mathematical manipulations rarely cause much difficulty. Rather it is that the biologist, lacking the physicist's or chemist's experience in "reading" mathematical formulae, finds it difficult to appreciate what is happening in a mathematical treatment and to grasp the implications of the results obtained, when these are given in mathematical form. Accordingly, I have followed a procedure, which students seem to find helpful, of giving a rough-and-ready verbal treatment of a problem before attempting a much more exact mathematical treatment; when the results of the latter are not readily interpretable, I have given an elucidation. Another problem which often concerns students is the reliability of results obtained using approximate methods; I have, therefore, discussed this in fair detail in critical cases.

When dealing with controversial issues, I have done my very best to be fair. To conceal one's opinions entirely would probably make for a very dull book. I trust, however, that I have given enough for the reader previously unfamiliar with these controversies to form his own judgement.

To acknowledge all those who have so greatly assisted my understanding of population genetics would mean a very lengthy list. I should, however, particularly mention E. J. Machin, who introduced me to the subject in my schooldays, and the inspiring lectures of Dr. A. R. G. Owen. To express my debt to Sir Ronald Fisher would require literary powers far beyond my own; in his presence, indeed, "meadow, grove, and stream,/The earth, and every common sight/To me did seem/Apparalled in celestial light".

No author could be blessed with more helpful colleagues. I should particularly like to thank Dr. P. D. S. Caligari for his willingness to give unlimited time to discussing problems and their presentation, and for his many valuable suggestions. I am also indebted for encouragement, assistance and advice to Prof. J. L. Jinks, Rev. Dr. L. J. Eaves, Dr. M. J. Kearsy, Dr. A. J. Birley, Dr. G. H. Jones, Dr. A. J. Cornish-Bowden, Dr. N. Goodchild, Mr. I. J. Mackay and Mr. J. P. Gibson. Prof. Bryan Clarke was kind enough to read and comment on the section on *Cepaea* (although he would not necessarily agree with all that appears there). Finally, I should like to record my debt to my students. By their comments, queries, criticisms and (very occasional!) errors, they have guided me to what I believe to be a greatly improved understanding of the subject and its presentation. Of course, I take sole responsibility for anything in the book which is incompetent, irrelevant or immaterial.

J.S.G.

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*In Memoriam—E. J. Machin*  
*Best of Schoolmasters*