FARMING
AND FOOD SUPPLY
FARMING AND FOOD SUPPLY

THE INTERDEPENDENCE OF COUNTRYSIDE AND TOWN

by

SIR JOSEPH HUTCHINSON

C.M.G., Sc.D., F.R.S.

Drapers' Professor of Agriculture Emeritus,
University of Cambridge

CAMBRIDGE
AT THE UNIVERSITY PRESS
1972
CONTENTS

Acknowledgements page vii
Preface ix

PART I: INTRODUCTION
1 The history of agriculture 1

PART II: THE COMPONENTS OF AGRICULTURE
2 Climate and soil 13
3 Crops and stock 28
4 Husbandry 43
5 Technology 55
6 Nutrition 62

PART III: SYSTEMS OF AGRICULTURE
7 Britain 67
8 Sub-Saharan Africa 88
9 India 102

PART IV: AGRICULTURAL STRATEGY
10 Agriculture and development 115
11 Feeding the people 124

Appendix 137
References 139
Index 141
ACKNOWLEDGEMENTS

This book had its origin in lectures on comparative agriculture given over a period of twelve years when I was Drapers' Professor of Agriculture in Cambridge. The stimulus to study and to teach in this field came from Professor Sir Frank Engledow FRS, of whom I was once a pupil, and whom I succeeded in Cambridge. I inherited the lecture course from him, and his notes formed the basis on which I developed my own ideas. I cannot adequately thank him.

In the winter of 1969–70 I held a Royal Society Leverhulme Visiting Professorship at the Indian Agricultural Research Institute in New Delhi, and I undertook to give a course of lectures there on the same subject. My notes as I had by then developed them proved surprisingly inadequate as a basis for lectures on the same topics in New Delhi as I had discussed in Cambridge. If in this book I have been able to achieve some breadth of view, it is largely because of my good fortune in lecturing on the same topics in two continents. I am grateful to Dr M. S. Swaminathan, the Director, and his staff for the welcome they gave me and the facilities they put at my disposal.

My obligations in respect of information supplied and criticism offered are too numerous to set out in full, but I must acknowledge my debt to F. Hardy, one of the wisest of all students of tropical agriculture, from whom many others beside myself first learnt the principles of tropical crop ecology.

Finally, I owe a great deal to F. A. Buttress, Librarian in the School of Applied Biology in Cambridge, for his generous and unfailing help in all library matters, and in particular in locating little known but important references.

J.B.H.
PREFACE

Through agriculture, human communities have established a situation in which they are relieved of the necessity to spend the greater part of their time in pursuit of the necessities of existence. One man is able to feed a number of others beside himself, and thereby to liberate the others to do other things, in part on his behalf. So agricultural specialists feed craftsmen and artisans, priests and civil servants, who have left the land and developed urban communities. A rising standard of living has depended historically on the ability of agriculture progressively to release men to these other activities, and with its own reduced human resources to feed the increased urban population. This is a process that has gone on ever since agriculture began, and which continues today. Even in Britain, in which less than four per cent of the population is engaged in agriculture, the industry is still releasing workers at a rate of five per cent of its own work force per annum.

Impressed by this continuing reduction in numbers, some authorities have regarded agriculture as a declining industry. An industry that produces the basic essentials of existence, and does so with increasing efficiency with a steadily smaller demand for human effort, is not a declining industry. That it is a misunderstood industry is not to be denied, and it is the purpose of this essay to reduce this misunderstanding and to trace the achievements of agriculture in the promotion of human welfare.

The early stages in the process whereby agriculture changes and develops to support increasingly diversified communities can still be seen in many parts of the world. In Britain, and in only a few other places, it is possible to study the most recent stages of development that have led to spectacular increases in productivity. Increases in productivity of this order will be needed in many other parts of the world if the rising population is to be fed, and higher standards of living are to be achieved. Hope for the future is sustained by the success of India, Pakistan and some other Asian countries in raising their production and approaching a balance in their food budgets. It is worthy of note that the countries that have made good progress in this respect are those with soils good enough and robust enough, and
PREFACE

climates sufficiently reliable, to have supported large populations over several millennia. Indeed it appears that with the ready availability of industrial fertilisers, the prospects of increasing food supplies are best on good lands with a good climate that are already in cultivation, rather than on the marginal lands that have not been brought into agricultural use. Hence it is appropriate in this study of agricultural development to take Britain, with a long history of improvement of intrinsically good land, as the standard of comparison.

My own experience has been in Britain, the West Indies, parts of Africa, and India, with short visits to other countries. For this reason the comparisons I have made are for the most part between Britain, Africa and India. I have endeavoured to write an essay in which are set out the views and convictions impressed upon me by my personal experience. I hope many of them will gain assent, and for the rest, if they generate debate on important issues, I shall be well content.

1971

J.B.H.