PREFACE

The first stimulus to reactivate a long dormant interest in problems of osmoregulation was given me in 1930 by a casual conversation with a man dealing in live eels who mentioned certain changes in these animals when transferred from sea water to fresh water.

When Dr A. Keys was asked to study these changes he found it necessary to work out his perfusion technique and discovered the secretion of chloride taking place in the gills.

I lectured on the general subject in the spring of 1935 and was asked to publish these lectures, but too many points seemed obscure and we have since been busy in the laboratory trying to elucidate some of these. Although new material keeps pouring in I venture to believe that a stocktaking and general review is opportune at the present moment. I have not attempted to give a complete review of the literature. Many more papers have been consulted than appear in the list of references and doubtless a number have been overlooked. My aim has been to present the essential features of the problem and to direct attention to points about which information is highly desirable. A small number of observations made in this laboratory are published here for the first time.

The scope of the book is somewhat wider than indicated by the title including as far as possible the concentration and regulation of single ions both in the organism as a whole and in cells.

I wish to record my debt of gratitude to the friends and collaborators who have helped me with suggestions and criticisms and especially to Dr K. Berg of the Laboratory for Fresh-water Biology, Hillerød, Dr Henri Koch of the University of Louvain and Mr E. Zeuthen of this laboratory.

AUGUST KROGH

COPENHAGEN
January 1939