PREFACE

The thesis contains the results of studies on the bio-ecology of certain specific environments and consists of six papers in all: two main papers and four additional papers in support of the former. All the six papers have a wide national and public health importance as they deal mainly with biological problems connected with water and sewage purification in India about which our knowledge is still fragmentary.

The thesis is divided into two parts. Part I deals with certain water supply problems and contains one main paper entitled: " Hydrobiological Studies on the Ajwa Reservoir and Nimeta Water Works at Baroda" and is sub-divided into two Sections. Section A deals with the "Hydrobiological Studies on the Ajwa Reservoir at Baroda", and Section B with the " Biology of the Nimeta Water Works at Baroda". Two additional papers in support of the same have also been included and they are, "Pretreatment and Filtration at the Nimeta Water Works at Baroda," and " Control of Aquatic Vegetation in Raw Water Storage Reservoirs."

Part II deals with certain aspects of sewage purification and contains the second main paper entitled: " Ecology and Seasonal Succession of Algae in the Oxidation Ponds of Ahmedabad", which is also sub-divided into two Sections: Section 'C' dealing with the "Ecology and Seasonal Succession of Algae in the Single Cell Oxidation Pond at Ahmedabad," and Section 'D' with the "Ecology and Seasonal Succession of Algae

in the Seven Cell Oxidation Ponds at Ahmedabad." The second main paper also has two additional papers in support of the same. They are: " Hydraulic loading and Stabilization of Sewage by Photosynthetic Oxygenation at Ahmedabad," and " Bacterial Photosynthesis in the Oxidation Ponds of Ahmedabad".

The author is not aware of any published data applying the basic principles of hydrobiology to the use of a storage reservoir (which serves as a source of water supply) and the water works attached to it in India.

Again, the treatment of sewage in lagoons or ponds has been extensively developed in western countries to suit their climatic conditions. In India, the method has apparently not been deliberately tried to any great extent so far (Raman 1960). A few isolated and half-hearted attempts have been made but they are mostly empirical. This thesis contains, perhaps, the results of the first attempt at making a regular and systematic examination of all aspects of a large single and a series of seven ponds in a scientific manner.

Hence, the observations contained in these papers are all original and reveal new relations of facts hitherto not noted by others and are therefore a distinct contribution to the advancement of our knowledge pertaining to biological management of water supplies and sewage purification under tropical conditions in India.