

VIII

LIST OF ILLUSTRATIONS

		Page No.
Fig.	1. A longitudinal Section of the Intake Tower at the Ajwa Reservoir	6
Fig.	2. Sample collection from a boat in the Ajwa reservoir	12
Fig.	3. Plankton Collection from a boat in the Ajwa reservoir	15
Fig.	4. A view of the Ajwa with the Pavagadh hill at the back ground	18
Fig.	5. Contour map of the Ajwa reservoir	19
Fig.	6. The Intake tower at the Ajwa reservoir	20
Fig.	7. Catchment area of the Ajwa reservoir..	21
Fig.	8. Graph showing the temperature of surface water in the reservoir	25
Fig.	9. Graph showing the temperature of the bottom layers of water in the reservoir	29
Fig.	10. Graph showing the relation between the surface and bottom temperatures in the reservoir	33
Fig.	11. Vertical distribution of temperature and dissolved oxygen in the reservoir.	34
Fig.	12. Relation between the atmospheric and water temperatures in the reservoir ..	35
Fig.	13. Relation between reservoir level and solids and hardness in the reservoir..	44
Fig.	14. Relation between water level, chlorides and organic matter in the reservoir...	51
Fig.	15. Aquatic vegetation in the Ajwa reservoir	72

IX

	Page No.
Fig. 16. Pediastrum, Botryococcus, Microcystis and Surirella in the reservoir	76
Fig. 17a. Rotifer fauna in the reservoir	79
Fig. 17b. Rotifer fauna in the reservoir	80
Fig. 17c. Rotifer fauna in the reservoir	81
Fig. 17d. Rotifer fauna in the reservoir	82
Fig. 17e. Rotifer fauna in the reservoir	83
Fig. 18. Crustaceans and Nauplius larvae in the reservoir	86
Fig. 19. A view of the Nimeta Water Works	134
Fig. 20. Collection of biological samples with the plankton net from the filtered water well in Rapid Sand Filter No.2 ...	136
Fig. 21. Photo-micrographs of organisms from the raw and sedimented water	147
Fig. 22. Photo-micrographs of phyto and zooplankton organisms collected from the filtrates from the rapid sand filters ..	150
Fig. 23. Photo-micrographs of Oligochetes and Nematodes in the filtrates from the rapid sand filters	152
Fig. 24. Graph showing the maximum, minimum and average monthly water levels in the Ajwa reservoir	192
Fig. 25. Graph showing the relation between the dosages of alum for raw water, turbidity of raw and settled waters and the number of hours of filter run	194
Fig. 26. Plan showing the sewage carrier, Pilot-plant Oxidation Pond and the multiple cell series of oxidation ponds in the Pirana Sewage Farm	232

X

		Page No.
Fig. 27.	Plan and section of the Pilot Plant Oxidation pond in the Pirana Sewage Farm	234
Fig. 28.	Photograph showing the beginning of the Sewage carrier in the Pirana Sewage Farm	239
Fig. 29.	(a) Views of the Sewage carriers from the Jamalpur and New Suburban Sewage Pumping station; and (b) of the main sewage carrier after mixture	241
Fig. 30.	Views of the Pilot plant oxidation pond in the Pirana Sewage Farm	243
Fig. 31.	Graph showing the physico-chemical and biological conditions in the single unit Pilet Plant	252
Fig. 32.	Graph showing the seasonal changes in the important parameters of the Single unit	255
Fig. 33.	Photo-micrographs of (a) Pandorina (b) mixture of Oscillatoria and Arthrospira and (c) Ankistrodesmus in the Single unit	258
Fig. 34.	Photo-micrographs of (a) Arthrospira enlarged; (b) and (c) Oscillatoria, Arthrospira & Microactinium in the single unit	259
Fig. 35.	Photo-micrographs of Daphnids in the single unit	279
Fig. 36.	Photo-micrographs of the two ends of a Chironomous larva	280
Fig. 37.	Graph showing the physico-chemical and biological conditions in the seven cell oxidation pond	331
Fig. 38.	Graph showing the average visible radiation received at the pond surface at Ahmedabad.	360

XI

Page No.

Fig. 39.	Graph showing the theoretical quantities of oxygen that will be produced through photosynthesis at 6% conversion energy at Ahmeabad	363
Fig. 40.	Graph showing the relation between depth and pond volume in the Single cell unit at the Pirana Sewage Farm in Ahmedabad	365
Fig. 41.	Graph showing the relation between BOD load applied and removed as against detention time during the monsoon season	366
Fig. 42.	Graph showing the relation between the pounds of oxygen or BOD load applied and removed and photosynthetic oxygen produced against the detention time during the post-monsoon season	367
Fig. 43.	Graph showing the relation between the pounds of oxygen or BOD load applied and removed as against detention time during the Cold weather	368
Fig. 44.	Graph showing the relation between the pounds of oxygen or BOD load applied and removed as against detention time during the hot weather period	370
Fig. 45.	Photo-micrographs of <u>Thiopedia rosea</u> from the oxidation ponds of Ahmedabad..	399
Fig. 46.	Another set photo-micrographs of <u>Thiopedia rosea</u> from the oxidation ponds of Ahmedabad.....	401
Fig. 47.	A Photo-micrograph of the red sulphur bacteria by Pringsheim and two magnified views of <u>Thiopedia rosea</u> collected from the Oxidation ponds of Ahmedabad	402

