Limnological Studies on the River Yamuna at Delhi, India*

Part I

Relation between the Chemistry and the State of Pollution in the River Yamuna

By Hakumat Rai

With 8 figures and 6 tables in the text

Abstract

This paper presents the results of physico-chemical observations during the period from February 1958 to January 1960, to ascertain between water chemistry and the state of pollution in the River Yamuna. "Excess chloride" was found to be the best parameter for determining the extent of pollution (sewage and natural drainage) in this river. The "oxygen balance" provided a useful measure of the ability of the river to cope with pollution under the prevailing conditions. Stream discharge exert an overriding influence on most of the parameters of pollution. There is an indication of self-purification in the river, but this process is retarded by the entrance of sewage and natural drainage at different places.

Introduction

Very little is known about the characteristics of even one river in India, which is known to be a land of rivers and streams. Few records of purely limnological investigations covering all aspects of Indian rivers and streams are available, although several faunistic and ecological studies pertaining to pollution and to definite brackish water regions have been made (PANIKKAR & AIYAR 1937, HORA & NAIR 1944, BHIMACHAR & DAVID 1946, CHACKO & GANAPATI 1949, GANAPATI & ALIKUNHI 1950, GANAPATI & CHACKO 1951, IYENGER & VENKATARAMAN 1951, CHACKO & GANAPATI 1952, DUTTA et al. 1954, ROY 1949 and 1955, BANERJEA et al. 1956, MOTAWI et al. 1956, CHAKARABARTY et al. 1959, LAKSHMIRAYANA 1965, and RAI 1962, 1964 and 1973). Much can be done to increase our knowledge of the physical, chemical, bacteriological and biological conditions of Indian rivers. If such records are available for a large number of Indian rivers and streams, it will be possible to classify them in a scientific manner, as in the case of lakes and ponds.

There is no River’s Boards Act or River’s Prevention of Pollution Act in India as in Europe and America. Therefore, there has been no widespread interest in the conditions of our rivers and streams passing through cities and towns. Consequently, there is no demand for pure rivers by Fishery interests, Water Undertakings and users of rivers in general. So, most of our rivers are being allowed to

* This paper is dedicated to Prof. W. OHLE on his 65th. Birthday.