

# Waterlogging and Salinity in the Indus Plain: Comment

*by*

FRANK M. EATON\*

Not only does Ghulam Mohammad's contribution on waterlogging and salinity in the Indus Plain [5] reflect a wide understanding of the agricultural problems of Pakistan but the clarity of his presentation is commendable. My comments all have to do with water quality and drainage problems in this vast irrigated area with the future rather than the immediately present problems primarily in mind. I trust that all statements will be regarded as constructive rather than critical.

The changes now occurring with irrigation in the compositions of the initially high-quality canal waters of the Indus Plain as these waters become groundwaters, appear to be little different from the past changes which occurred more slowly but which are responsible for the diverse compositions of the present groundwaters. Many of these present-day groundwaters were left behind by the flood waters which deposited the valley alluvium. The flood waters left on the land surface underwent concentration by evapotranspiration with precipitations of  $\text{CaCO}_3$  and losses of Mg in the form of compounds of salica. As a result of these precipitations there were increases in the proportions of Na.

That little of the salt being left in the soils and groundwaters of Pakistan with irrigation is now being carried to the sea is indicated by the finding that a sample of the Indus River collected near Karachi in February 1953, when the discharge was very low, was only a little more saline than that of waters sampled near the upper head works [3]. The Karachi sample was reported to have been about 80 per cent return flow from surface runoff and drainage from irrigated lands.

The fact that little of the salt brought onto the lands of the Indus Plain by the rivers and canals is being discharged into the sea, represents a major long-time threat to the permanency of the agriculture of West Pakistan unless a suitable means of disposing of the salt residues of these irrigation waters

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\*Dr. Frank M. Eaton is the Associate at the Agricultural Experiment Station, University of California, Riverside, California.