

## P R E F A C E

The term 'interaction' that titles the present thesis, has been applied to mean, mainly, the sorption and desorption phenomena along with other effects as may accrue from or be related to them. For the purpose of this study, two of the thiazine dyes viz., thionine and tetraethyl thionine (TET), with a distinct difference in sizes but tacit similarity in structures, have been selected as adsorbates whilst adsorbents include three natural exchangers viz., montmorillonite, vermiculite and kaolinite and one synthetic exchanger, Laponite (hectorite). Much emphasis has been laid on the desorption of thionine and TET from their respective exchanger-complexes by using desorbing ions of varying charges and chain lengths. A systematic attempt has been made to interpret the data of both sorption and desorption in the light of prevalent approaches and models and also to express the data in qualitative and quantitative terms.

Detachromasy, an inherent property of some cationic dyes like the thiazines, has been studied especially with respect to sorption of thionine and TET onto the various exchangers in order to throw light on the intricacies of the exchange phenomenon. The effect of temperature on the sorption of these dyes onto montmorillonite, vermiculite and kaolinite has also been investigated.

The present dissertation embodies the results of research carried out at the Department of Chemistry, University of North Bengal.