INTRODUCTION

The reproductive cycle has been studied in a few teleost fishes. An attempt has been made to study the reproductive cycle in three teleosts - Ambassia, Puntius and Rohitee with respect to their morphology, histology and seasonal changes.

In fishes, our knowledge about the hypothalamic - hypophyseal system is very scanty when compared to the great deal known about the system in vertebrates. A study of this system is therefore desirable in Ambassia, Puntius and Rohitee which may help us to throw more light on the hypothalamic - hypophyseal system in teleost fishes. In these fishes the nucleus lateralis tuberis is absent but the nucleus preopticus is well developed which can be studied more easily than in species where both these nuclei are present. Regarding correlation of the neurosecretory activity of the nucleus preopticus with the cytological changes in the pituitary gland and the reproductive cycle there is practically nothing known except for the work of Bhargava (1966). The nucleus preopticus may respond to external stimuli and affect the pituitary in its control of the gonads. Hence a study of the seasonal changes in the cells of the nucleus preopticus in these fishes might help to solve the problem.

Since the pars distalis proximale has been implicated with the maturation of the gonads in many fishes it was thought desirable to make a statistical assessment of this relationship in these fishes.
The hypothalamo-hypophyseal vascular relation has not been studied much in teleost fishes. A detailed study of this has been made in *Ambassis ramzi* in order to understand the mechanism of hypothalamic control on the adenohypophysis in its regulation of the reproductive cycle.

An attempt to solve some of these important problems have been made in the present investigation.