

The present thesis, comprising seven chapters, pertains to comprehensive morphological and histochemical studies on the giant liver-fluke, Fasciola gigantica which has a fairly high incidence in the beef cattle of the agrarian tropics.

Apart from the introduction, historical review, and material and methods the other seven chapters are related to the I the tegument, II the parenchyma, III the digestive system, IV myoarchitecture, V the nervous system and the neurosecretory cells, VI the excretory system and the osmoregulation, and VII the reproductive system, respectively. The last one pertains to a concise bibliography comprising 155 references, cited in the text; only 9 of these references could not be consulted in original. Such titles are marked with an asterik. The plates (I - XXX) contain 196 figures and the text also incorporates 6 tables relating to histochemical observations.

As regards the tegument and the parenchyma it's salient morphological features of the respective regions and their cellular components have been described in detail, in the perspective of the ultrastructural studies made in recent years on closely related species. Similar studies have been made on the digestive system and detailed histological and functional aspects of the gastrodermis have been described in detail.

Detailed account of the arrangement of different patterns of musculature, nervous system and excretory system are also given

in successive chapters and emphasis has been accorded to the presence of nuclei in muscle bundles and the occurrence and types of the neurosecretory cells in various body regions.

The account of the reproductive system elaborates the male and female components and gonadal anomalies observed during the course of these studies have also been reported.

Though all these studies were basically carried out on morphological background, these have been concurrently substantiated with standard histochemical studies which has enabled the author to present an elaborate account of the functional morphology of this parasite. A correlation between seasonal factors, mainly rainfall and incidence of the parasite F. gigantea has also been noted and on these parameters may be utilized as a tool for monitoring a priori prospects relating to population dynamics to the incidence of F. gigantea in a particular locality.