GENERAL INTRODUCTION

Malarial infection is a problem to the human society nearly all over the world from time immemorial. Though it has been controlled to a certain extent by virtue of our advanced knowledge, the disease has not certainly been totally eradicated.

The name 'malaria parasite' was generally used by the early workers to mention all the pigmented parasites found within the red blood corpuscles in vertebrate animals. But the authors of the "Terminology of malaria and of malaria eradication (W.H.O.,1963)" suggested that this term should be restricted to indicate those parasites belonging to family Plasmodiidae. Inspite of this terminological restriction by the said authority the term 'malaria parasite' is continuing to be used by many workers to mean all the parasites belonging to the genera Henatocystis, Kyoteria, Polychromophilus, Ravella, Haemoproteus and Leucocytozoon.

Till World War II the tissue stages of the primate malaria parasite remained unknown. Professor P.C.C. Garnham traced for the first time the development of the tissue stages of primate malaria parasites in 1947. He found the development of the tissue stages of Henatocystis kochi in the parenchyma cells of the liver of

certain African monkeys. Following this discovery, Shortt and Garnham (1948) worked out the development of the tissue stages in the parenchyma cells of liver in the case of Plasmodium cynomolgi and P. vivax infection. Subsequently, Shortt and his co-workers (1951) traced the development of the tissue stages of Plasmodium falciparum.

It appears that the studies on the mammalian haemoproteid parasites are not as adequate as those in the case of true malaria parasites. The knowledge about the sporogonic cycle of the mammalian haemoproteid parasites is still insufficient, and there is no clear idea about the pathological aspects, if any, of these parasites. Besides these, there is doubt about the occurrence of tissue stages of these haemoproteid parasites in organs other than the liver. Keeping this doubt in mind an attempt has been made to make further investigation on the haemoproteid parasites of the flying squirrels of Darjeeling area.

The study of different aspects of the avian malaria parasites has contributed much to the subject of malariology. Eminent Protozoologists like H. de Beaupaire Aragão (1908), Danilewsky (1884), Grassi and Feletti (1880, 1891, 1892), Celli and San Felice(1891),

Raffaele (1936) and Huff(1951) worked on various aspects of avian malaria parasites.

A large number of different species of birds throughout the world have been reported to harbour pigmented parasites in their blood and a large number of avian malaria parasites have so far been described. Such study has not, however, covered many of the birds found in the Himalayan areas where a great variety of colourful birds occur. In the present study an attempt has been made to study some of these birds for malaria infection.

Although the study of taxonomy of the malaria parasites has proceeded considerably, studies on the cytochemical aspects of these blood parasites are lagging behind. The features which are revealed by the chemical tests may be expected to help in the diagnosis of species. As the protozoan parasites have microscopic size it is difficult to employ biochemical tests on them.

In course of the present investigation an attempt has been made to undertake a fluorescent microscopic study on the lesions of Hepatocystis and Rayella, the haemoprotoid parasites of the flying squirrels. The induced fluorescence method of Armstrong using acridine orange for detecting the nucleic acids within the para-

sitic bodies was followed; while thioflavine was used for detecting amyloid substance.