

varieties so far practised in India on a scientific basis, showing that the selection should be on the correlation of yield and temperature during the ripening period.

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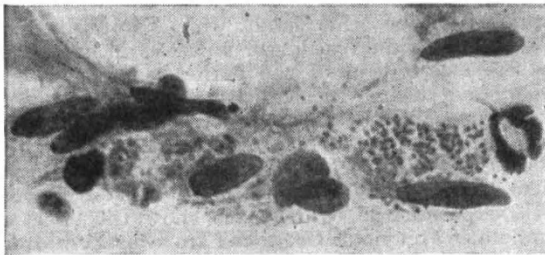
- ¹ Bridgeford, R. O., and Hayes, H. K., *J. Amer. Soc. Agron.*, **23**, 106 (1931).
² Hayes, H. K., Aamodt, O. S., and Stevenson, F. J., *J. Amer. Soc. Agron.*, **19**, 896 (1927).
³ Howard, A., "Crop Production in India" (1924).
⁴ Immer, F. R., and Stevenson, F. J., *J. Amer. Soc. Agron.*, **20**, 1108 (1928).
⁵ Percival, J., "The Wheat Plant" (1921).
⁶ Sharma, S. N., thesis Assoc. Imp. Agri. Res. Inst. (1946).
⁷ Sprague, H. B., *J. Amer. Soc. Agron.*, **18**, 971 (1926).
⁸ Waldron, L. R., *J. Amer. Soc. Agron.*, **23**, 625 (1931).
⁹ Waldron, L. R., *J. Agric. Res.*, **47**, 129 (1933).

A Haemosporidian of Bats

DURING the autumn of 1946 a number of bats belonging to ten species were examined for malaria parasites. These included: 39 *Rhinolophus ferrum-equinum*, 18 *Rhinopoma microphyllum*, 5 *Asellia tridens*, 13 *Taphozous nudiventris*, 57 *Myotis myotis*, 18 *Myotis daubentonii*, 17 *Myotis nattererii*, 78 *Pipistrellus kuhlii*, 45 *Miniopterus schreibersii* and 9 *Roussettus aegyptiacus*.

In 10 *Myotis myotis*, 3 *Myotis nattererii* and 35 *Miniopterus schreibersii*, red cells were found to harbour pigmented parasites. All the forms seen were diagnosed as gametocytes in various stages of development. The fully developed gametocyte is round and fills the whole of the parasitized red cell. The rate of infestation varied between single gametocytes in a thick drop up to two or three gametocytes per microscopic field in a thin film. Exflagellation of the microgametocyte was obtained in the wet chamber.

So far, no schizogonic cycle has been found in red blood cells even in splenectomized animals.



SMEAR OF BONE-MARROW FROM *Myotis myotis*

In one *Myotis myotis* intense schizogony was seen in smears of various tissues. Reticulum cells and cells of the granulocyte series of the bone-marrow contained numerous parasites in various stages of schizogony; in tissue smears free schizonts were also found. Wandering and fixed macrophages of the lung, kidney and liver were parasitized to a lesser degree. In one *Myotis nattererii* similar schizogonic forms were also found free in smears of the liver and kidney.

The schizogonic cycle in the tissues resembles in many respects that of *Haemoproteus columbae* as described by Aragão.

Myotis myotis, *Myotis nattererii* and *Miniopterus schreibersii* were heavily infested with pupiparous

flies of the family Nycteribiidae belonging to various species not yet fully identified. In one of these, sporozoites were found in the salivary glands.

Investigations up to now do not warrant any final conclusion as to the exact systematic position of these parasites. So far as we know, this is the first instance in which prolific extra-erythrocytic schizogony of a Haemosporidian with a pigment-producing gametocyte has been found in a mammal.

Fuller details on the evolution of these parasites will be published elsewhere.

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REFERENCES

- Manwell, R. D., *Amer. J. Hyg.*, **43**, 1 (1946). (A comprehensive list of references on bat malaria is included.)
 Wenyon, C. M., "Protozoology" (1926).

A Sandfly Described in 1691

WE have discovered recently the existence of a description of a sandfly by Phillippo Bonanni¹ published in 1691, together with an interesting plate. So far as we are aware, there is no mention of it in recent literature, and it is unknown to other workers on *Phlebotomus*.

Larrouse², in his treatise published in 1921, gives the earliest description of a *Phlebotomus* known to him then as being that of Scopoli³ in 1786, and since Larrouse's monograph no earlier record seems to have been mentioned. Bonanni's description is of a general character, and he considers his sandfly to be a species of mosquito, which he calls *Sarapico*: "Culex minimus aculeatus Sarapico". He distinctly mentions its nocturnal and blood-sucking habits: "Avidissimus humani sanguinis noctu praecipue venatur sine sono", and appears to be surprised at the ferocity of the bite which this minute creature is capable of with its short proboscis.

We have not verified its systematic position as yet, but hope to attempt to do so in the near future. As there is no figure of the buccal armature and genital organs, and also on account of recently accepted taxonomic characters, it will prove difficult to relate it to one of the recently described species.

It should be mentioned that Bonanni directs attention to another insect which was sometimes captured together with his sandflies. It appears from the description and figure to be a species of *Pericoma*, a genus closely allied to *Phlebotomus*.

A detailed communication is to appear elsewhere.

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¹ Bonanni, Phillippo, "Micrographia curiosa", p. 43, in "Observationes circa viventia quae in rebus non viventibus reperuntur. Cum micrographia curiosa etc." (Rome, 1691).

² Larrouse, F., "Étude systématique et médicale des Phlébotomes" (Paris, 1921).

³ Scopoli, G. A., "Deliciae faun. et flor. insubricae", 1, 55 (Pavia, 1786).