ending at its apex. Anal hook (Fig. 7) with a short process at the base.

Paramere (Fig. 6) elongate with its cephalic portion uniformly tapering towards apex, caudal portion twisted at its apex. Connective (Fig. 9) papilionaceous. Aedeagus (Fig. 8) broad at the base and narrow towards the apex with a stout dorsal apodeme; aedeagal shaft longer than the apodeme; gonopore apical.

Abdominal apodemes (Fig. 11) squarish with angles rounded.

This species comes near *A. fagonica* Bindra and can be differentiated externally by the venation of forewing and hindwing. Further, it differs in the shape of the pygofer lobes and in the structure of the anal hooks as given in the key.

Length : Total 4·13 mm.

Holotype : 1♂, AFGANISTAN; 21-vii-1939, T. Ahmad, at light.

Paratype : 1♂, AFGANISTAN; 7-vii-1939, T. Ahmad on cotton.

The type material is deposited in National Pusa Collections, I.A.R.I., New Delhi 110 012.

The authors are thankful to Dr. N. C. Pant, former Head of the Division of Entomology, I.A.R.I., New Delhi, for the facilities provided.

A.P. Agricultural University, Rajendranagar, Hyderabad 500 030 — P. KAMESWARA RAO.
and
Indian Agric. Res. Inst., New Delhi 110 012, — USHA RAMAKRISHNAN. SWARAJ GHAI.

September 7, 1978.

1. Bindra, O. S., Final Res. Project (1966–71), PL–480 Project (A7–ENT–22), Punjab Agril. Univ. Ludhiana, 1973, p. 11.
2. Viraktamat, C. A., *Kontyu*, 1973, **41**, 307.

NEW HOST FOR *QUADRUSPINOSPORA CHAKRAVARTYEI* CHAKRABORTY AND HALDAR, 1974 (PROTOZOA : SPOROZOA)

IN a recent communication, Sarkar *et al.*[1] briefly reported the occurrence of the cephaline gregarine (Protozoa : Sporozoa), *Quadruspinospora chakravartyei* Chakraborty and Haldar, 1974 from the grasshopper, *Aiolopus tamulus* (Fabricius), obtained frequently in this locality. The parasite was first recorded by Chakraborty and Haldar[2] from a grasshopper, *Spathosternum* sp. Later, Haldar and Chakraborty[3] made detailed observations on its structure and life history. The trophozoite obtained from the new host has an elongated body and in living condition, its cytoplasm is milky-white in colour. Its epimerite is a subspherical knob provided with 22 to 24 pointed digitiform processes. The protomerite is dome-shaped and is typically broader than long. The deutomerite is broadest immediately behind the protomerite-deutomerite septum and gradually tapers posteriorly. It also contains a spherical nucleus. The sporadin is solitary and has the same features as the trophozoite, except that an epimerite is lacking here. The gametocyst is more or less spherical in outline and its wall is smooth and thin. Dehiscence of the cyst takes place by simple rupture at about 120 hours inside the moist chamber. The spores are very small, oval bodies and are provided with two long spines at both the poles. Each spore contains eight sporozoites inside when fully mature. The gregarine measures 50·0 to 460·5 μm in total length (average 340·9 μm) and its spores are 9·5 × 5·5 μm in dimensions.

Since the genus *Quadruspinospora* was established by Sarkar and Chakravarty[4], altogether six species have been described under it. These are : *Q. aelopii* Sarkar and Chakravarty from *Aiolopus* sp.[4], *Q. chakravartyei* Chakraborty and Haldar from *Spathosternum* sp.[2], *Q. indoaiolopii* Haldar and Chakraborty from *Aiolopus* sp.[5], *Q. acridii* Haldar and Chakraborty from *Acrida exaltata* (Walk.)[5], *Q. megaspinosa* Haldar and Chakraborty from *Trilophidia annulata* Thunb.[5] and *Q. atractomorphii* Haldar and Chakraborty from *Atractomorpha crenulata* (Fabr.)[6]. It would seem that the gregarines are host specific since no two hosts are infected by a single parasite. The fact that *Q. chakravartyei* also infects *Aiolopus tamulus* would probably suggest that this group of parasites may not be host specific as generally believed. The slight variations in the morphology and measurements are perhaps due to the change in the host-range and, therefore, do not warrant creation of a new species.

The authors express their sincere thanks to the Head of the Department of Zoology, University of Kalyani, for laboratory facilities.

Protozoology Laboratory, Department of Zoology, University of Kalyani, Kalyani 741 235, W.B., India, *March* 17, 1979. — D. P. HALDAR. N. K. SARKAR. S. C. DUTTA.

1. Sarkar, N. K., Haldar, D. P. and Dutta, S. C., *Proc. 66th Ind. Sci. Cong. Pt. III*, 1979, p. 112.
2. Chakraborty, N. and Haldar, D. P., *Ibid.*, 1974, p. 51.
3. Haldar, D. P. and Chakraborty, N., *Geobios*, 1975, **2**, 104.
4. Sarkar, A. and Chakravarty, M., *Proc. Zool. Soc., Calcutta*, 1969, **12**, 71.
5. Haldar, D. P. and Chakraborty, N., *Ibid.*, 1976, **29** (In Press).
6. — and —, *Ind. J. Zool.*, 1978, **6**, 43.