NOTES ON SPIDER MITES IN THE COLLECTION OF THE ZOOLOGICAL SURVEY OF INDIA, CALCUTTA (ACARINA : TETRANYCHIDAE)[1]

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(With 14 Text-figures)

CONTENTS

I—INTRODUCTION

The material on which this note is based was recently sent to the writer for identification by Dr. A. P. Kapur, Officer-in-Charge of the Entomology Section of the Zoological Survey of India, Calcutta. On examination, the specimens were found to belong to the three species, *Petrobia latens* (Müller), *Eutetranychus banksi* (McGregor) and *Paratetranychus* sp. It seems to be worth while to publish this short note in order to furnish data for further detailed studies of Indian spider mites.

The writer wishes to express his cordial thanks to Dr. Kapur for giving the opportunity to study the present material. His thanks are also due to Prof. Tohru Uchida who kindly made valuable suggestions.

II—SYSTEMATIC ACCOUNT

Petrobia latens (Müller)

1776. *Acarus latens* Müller, *Zool. Dan. Prodr.*, p. 287.
1804. *Trombidium lapidum* Hammer, in : Hermann *Mém. Apt.*, p. 49.
1877. *Petrobia lapidum*, Murray, *Econ. Ent. Apt.*, p. 118.
1915. *Petrobia latens*, Oudemans, *Arch. Naturgesch.*, Berlin, **81** (A, 5), p. 44.
1953. *Petrobia latens*, Baker & Pritchard, *Hilgardia*, Berkeley, **22**, p. 206, figs. 2—3.
1955. *Petrobia latens*, Pritchard & Baker, *Pacif. Coast Ent. Soc. Mem. Ser.*, San Francisco, **2**, p. 51, figs. 37—38.
1955. *Petrobia latens*, Evans & Browning, *Brit. Mus. (Nat. Hist.) Econ Ser.*, London, No. 17, p. 41, figs. 61—63.
1956. *Petrobia latens*, Ehara, *J. Fac. Sci. Hokkaido Univ.*, Sapporo, Ser. 6 Zool., **12** (3), p. 246, figs. 3—4.

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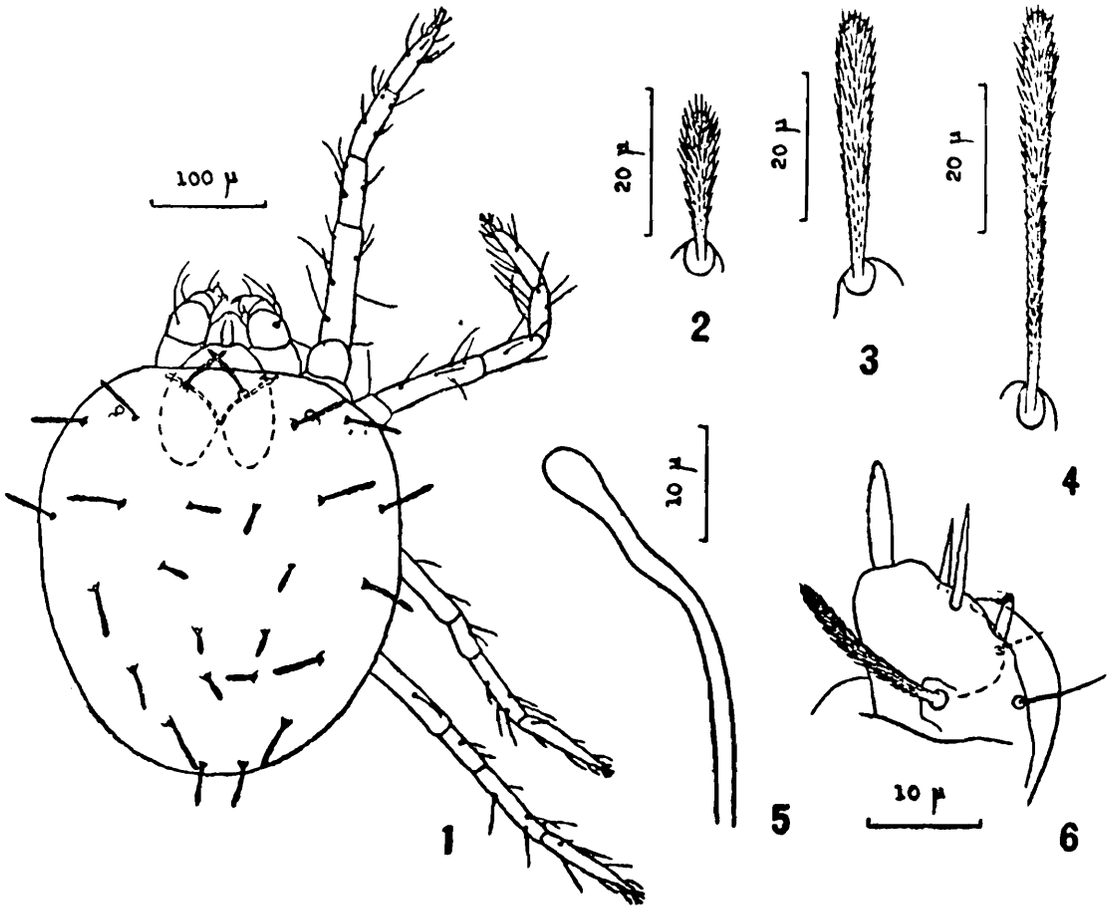
Specimens examined.—Many ♀♀, Gwalior (Madhya Pradesh), 15. ii. 1957 (on wheat), *O. S. Bindra* leg.

Remarks.—This mite is probably new to India. In Asia, so far as the writer is aware, it is known only from Japan (Ehara, 1956). Information on this well-known mite is summarized by several writers (Baker & Pritchard, 1953 ; Pritchard & Baker, 1955 ; Evans & Browning, 1955). This mite attracts attention as a wheat pest in U. S. A.



TEXT-FIGS.—1-6. *Eutetranychus banksi* (McGregor), female. (1). Dorsal view of body. (2), (3) and (4). Dorsal setae. (5). Peritreme. (6). Distal segment of palpus.

Eutetranychus banksi (McGregor)

(Text-figs. 1-10)

1914. *Tetranychus banksi* McGregor, *Ann. ent. Soc. Amer.*, Columbus, Ohio, 7 (4), p. 357, pl. 44.

1917. *Neotetranychus* (*Eutetranychus*) *banksi*, Banks, *Ent. News*, Philadelphia, 28 (5), p. 197.

1919. *Anychus banksi*, McGregor, *Proc. U.S. nat. Mus.*, Washington, 56(2303), p. 644.

1940. *Anychus ricini*, Rahman & Sapra, *Proc. Indian Acad. Sci.*, Bangalore, B, 11(5), p. 194, fig. 6.

1950. *Eutetranychus banksi*, McGregor, *Amer. Midl. Nat.*, Notre Dame, 44(2), p. 268.

1955. *Eutetranychus banksi*, Pritchard & Baker, *Pacif. Coast Ent. Soc. Mem. Ser.*, San Francisco, 2, p. 115, figs. 90-92.

Female: Body rotund, 360 μ long and 330 μ wide in widest part. Rostrum reaching the basal part of femur I. Distal segment of palpus longer than wide, with five setae including a stout, pectinate seta ; terminal sensillum slender, spindle-shaped, about five times as long as wide ; dorsal sensillum very small. Mandibular plate broadly oval (ratio of breadth to length, 8·4 : 10), slightly notched. Legs slender ; relative lengths of segments in leg I as follows : trochanter, 11 ; femur, 37 ; genu, 21 ; tibia, 23 ; tarsus, 22. Tarsi with a pair of strongly pectinate tactile setae distally. Tarsus I with twelve tactile and six sensory setae in total ; without duplex setae, but carrying on the dorsum a sensory seta that is probably homologous with a distal member of the duplex setae, and bearing lateroventrally a pair of associated setae resembling the second pair of duplex setae. Tibia I with nine tactile and one sensory setae. Tarsus II with five tactile setae proximal to duplex setae ; proximal member of the duplex setae slightly shorter than distal member ; tibia II with six tactile setae. Tarsus III with one sensory seta dorsoproximally, and without any sensory seta at the distal part ; tibia III with six tactile setae. Tarsus IV with one sensory seta dorsoproximally, and without any sensory seta at the distal part ; tibia IV with seven tactile setae. Empodia apparently lacking. Peritreme narrow, ending in an oval portion. Dorsal setae generally arising from tubercles, spatulate or blunt-ended, pubescent, and shorter than intervals to bases of setae next behind : laterally located setae on dorsum longer and less spatulate than mediodorsally situated setae in some specimens ; most of the dorsal setae short and spatulate in certain specimens ; other intergrade specimens present. Genital flap with transverse striae on anterior portion and with longitudinal striae on posterior portion. Area immediately anterior to genital flap with transverse striae.

Male : Not available to the writer.

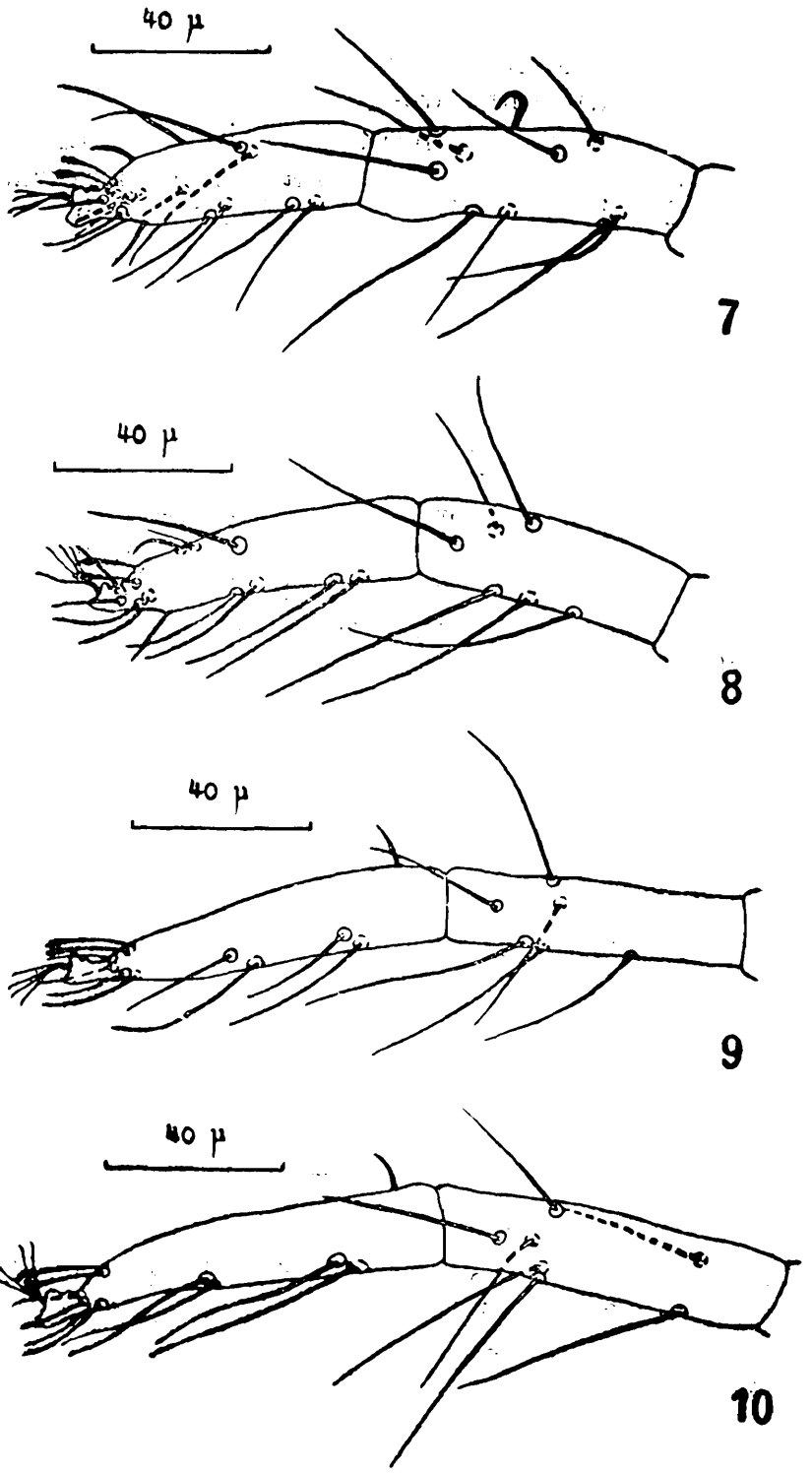
Nymph : Dorsal setae slender.

Specimens examined.—21♀♀ & 1 nymph, Eden Garden, Calcutta, 22. xii. 1956 (on oleander), *A. P. Kapur* leg.

Remarks.—Referring to the original description of *Anychus ricini* Rahman and Sapra, 1940, which is based on specimens from Lyallpur, Pritchard and Baker (1955) considered the species to be a synonym of *Eutetranychus banksi*. Their opinion is herein accepted. Indian material of *E. banksi* has been again treated in the present work.

E. banksi is known from India (*A. ricini*), Italy, the Near East, North and South America, and South Africa. It shows wide, local and individual variations in dorsal chaetotactic pattern. The drawings of *A. ricini* presented by Rahman and Sapra indicate that the type specimens carry long, laterally located dorsal setae. As is described above, a considerable range of variations in relative sizes of dorsal setae is found in the present specimens collected at the same time.

Based on American material, Pritchard and Baker present excellent drawings of the chaetotactic pattern of tarsi I and II and tibiae I and II. The Indian female specimens here examined are different from American ones in leg chaetotaxy. In the former, tarsus I is deficient in duplex setae, while in the latter tarsus I bears a pair of duplex setae on dorsum.



TEXT-FIGS.—7-10. *Eutetranychus banksi* (McGregor), female.
(7). Tarsus and tibia I. (8). Tarsus and tibia II. (9). Tarsus and tibia III. (10). Tarsus and tibia IV.

Furthermore, tarsus I of the former carries eighteen pairs of setae including one pair of strongly pectinate tactile setae, while tarsus I of the latter bears a less number of setae among which no strongly pectinate setae occur. No sensory seta is found at the proximal part of tibia III

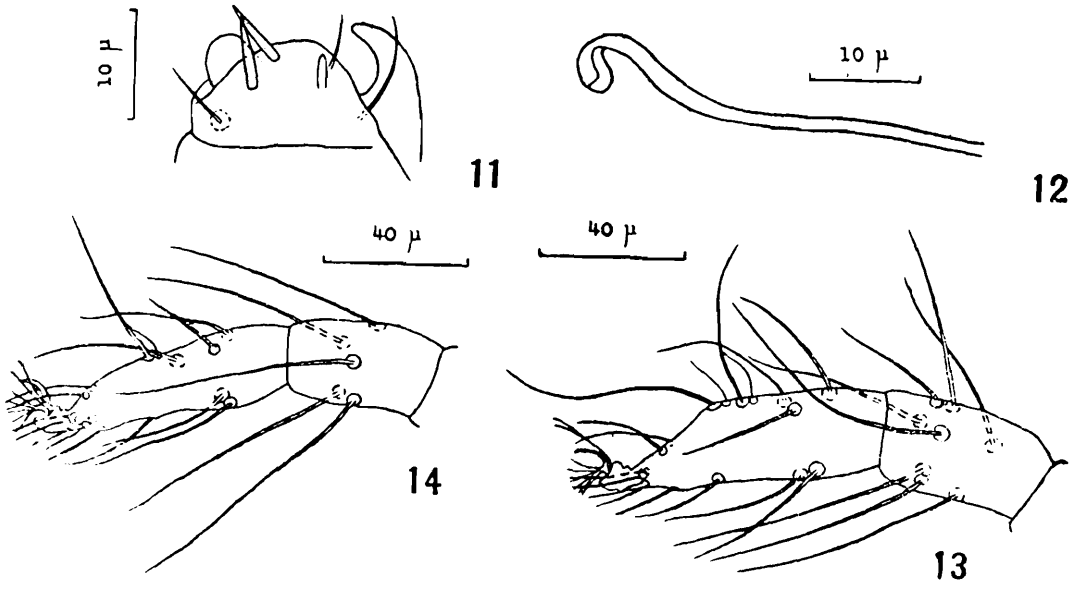
in the present specimens, although such seta is reported to occur in specimens from Israel.

Castor bean, almond, *Cassia fistula, Zigiphus jujuba,* and citrus are recorded as host-plants of *A. ricini* in India. The present material was collected on oleander. In regions other than India a number of other hosts have been recorded.

Paratetranychus sp.

(Text-figs. 11-14)

Female : Body from above oval, 430 μ long and 330 μ wide in widest part. Terminal sensillum of palpus about as broad as long ; dorsal sensillum spindle-shaped. Mandibular plate (ratio of breadth to length, 6·7 : 10) notched mediodistally. Tarsus I with four tactile and one sensory setae proximal to proximal set of duplex setae ; proximal duplex setae of tarsus I with proximal member more than one-third as long as



TEXT-FIGS.—11-14. *Paratetranychus* sp., female.
(11). Distal segment of palpus. (12). Peritreme. (13). Tarsus and tibia I. (14). Tarsus and tibia II.

distal member ; distal duplex setae of the tarsus with proximal member about one-fourth as long as distal member ; tibia I with seven tactile and one sensory setae. Tarsus II with three tactile and one sensory setae proximal to duplex setae, and with another tactile seta near the duplex setae ; tibiae II and III with five tactile setae respectively. Empodial claw of leg I with six pairs of proximoventral setae. Peritreme narrow, dilated at the distal end. Dorsal setae not set on tubercles, slender, tapering, pubescent, and longer than intervals between bases. Genital flap with transverse striae ; area immediately anterior to the flap with longitudinal striae.

Male : Not available.

Specimens examined.—5♀♀ & 1 nymph, Tholkabad, Singhbhum Dt., Chotanagpur, 9. ii. 1955 (sal leaves), *A. P. Kapur* leg.

Remarks.—This mite belongs to a species group of the genus ; the group is characterized by having seven tactile setae on tibia I and four tactile setae proximal to the duplex setae on tarsus I. Because of the unavailability of the male, however, the writer cannot state positively whether this mite belongs to the known Indian species, *Paratetranychus mangiferus* Rahman and Sapra or *P. punicae* Hirst, or to any other species. In India, *P. mangiferus* is known on mango, grape and *Eugenia jambolana*, and *P. punicae* is known on pomegranate and grape. Dr. Kapur stated in correspondence : " Mites as pests of sal have not been recorded before and when I collected these, I suspected that the record would be interesting."

III—References

BAKER, E. W. and PRITCHARD, A. E. 1953. A guide to the spider mites of cotton.—*Hilgardia,* Berkeley, **22,** pp. 203-234.

EHARA, S. 1956. Some spider mites from northern Japan.—*J. Fac. Sci. Hokkaido Univ.*, Sapporo, Ser. 6 Zool., **12,** pp. 244-258.

EVANS, G. O. and BROWNING, E. 1955. Some British mites of economic importance.—*Brit. Mus.* (*Nat. Hist.*) *Econ. Ser.*, London, No. 17, x+46 pp.

HIRST, S. 1926. Descriptions of new mites, including four new species of "red spider."—*Proc. zool. Soc. Lond.*, London, pp. 825-841.

PRITCHARD, A. E. and BAKER, E. W 1955. A revision of the spider mite family Tetranychidae.—*Pacif. Coast ent. Soc. Mem. Ser.*, San Francisco, **2,** 472 pp., 1 pl.

RAHMAN, K. A. and SAPRA, A. N. 1940. Mites of the family Tetranychidae from Lyallpur with descriptions of four new species.—*Proc. Indian Acad. Sci.*, Bangalore, **B, 11,** pp. 177-196.