# A NEW SPECIES OF COCCINELLIDAE (COLEOPTERA) PREDACIOUS ON THE CITRUS WHITE-FLY IN INDIA.

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The natural enemies of the citrus white-fly, *Dialeurodes citri* (Ashmead), and other Aleyrodidae in India and other parts of Asia have received particular attention from several American and European entomologists who have been interested in the biological control of insect pests. Woglum (1913) visited India and the Orient in search of the natural enemies of the citrus white-fly while Silvestri (1927) published extensive information on parasites and predators in his account of the Aleyrodidae infesting citrus trees in the Far East. From 1929 to 1931 inclusive, Clausen (1934) made extensive observations on the natural enemies of Aleyrodidae in Malaya, Java and Sumatra and to a lesser extent in the Philippine Islands, Siam, Burma and Ceylon. In his list of the host species of Aleyrodidae and their respective natural enemies as recorded in literature or discovered by himself, Clausen (p. 256) mentioned the following three species of predators of the citrus white-fly.

1. *Brumus suturalis* Fabricius. Coccinellidae.
2. *Cryptognatha flavescens* Motschulsky. Coccinellidae.
3. *Serangium* sp. Coccinellidae.

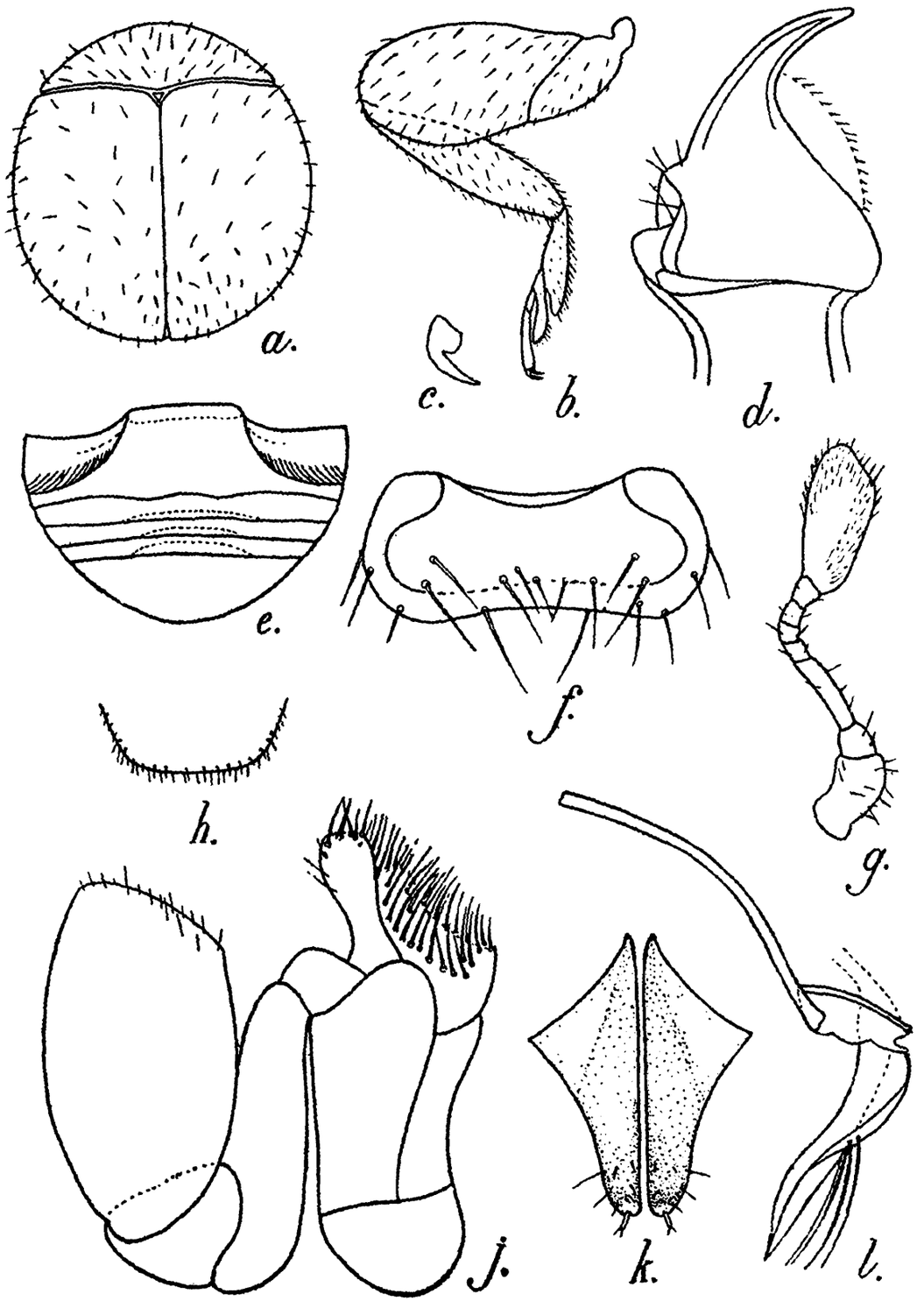
*B. suturalis* and *C. flavescens* were recorded from India and *Serangium* sp. from Japan. The material described below was found feeding on *D. citri* at Jeolikota, Nainital, Uttar Pradesh, by Mr. Z. A. Siddiqi. It belongs to the genus *Catana* Chapin (1940) of which the following three species are already known.

1. *Catana clauseni* Chapin is a native of the East Indies (Sumatra and Malaya) and has been introduced into Cuba in the West Indies. 2. *Catana parcesetosa* (Sicard) occurs in north and south India and feeds on Aleyrodidae. 3. *Catana spilota* (Weise) comes from the Philippines. A revised key to distinguish these three species and the newly described species is appended at the end.

**Catana chapini**, sp. nov.

Body sub-hemispherical, slightly longer than the greatest width (Text-fig. 1,*a*). Head brown to castaneous except for the greyish eyes. Pronotum variable in colour, being usually shining piceous but occasionally bright castaneous; on the whole slightly darker towards the base than near the anterior or lateral margins. Elytra shining, piceous to deep black. Pubescence on the upper surface greyish. Underside castaneous except in certain examples where the central portion comprising the median parts of metasternum and proximal abdominal sternites, is piceous.

Head slightly convex on the front, with minute and sparse punctation and thin, short, sparse and semierect pubescence. Eyes relatively coarsely facetted, slightly emarginate near the antennal socket which is




TEXT-FIG. 1.—*Catana chapini*, sp. n.; *a.*,—outline of the beetle showing sparse pubescence; *b.*,—leg of the third pair; *c.*,—claw (highly magnified) *d.*,—mandible; *e.*,—abdominal sternites (male); *f.*,—labrum; *g.*,—antenna; *h.*,—tenth tergite of female; *j.*,—maxilla; *k.*,—genital plates (ninth sternite; female); *l.*,—male genitalia (except sipho).

moderately large and distinctly margined. Antennae (*g*) eight segmented, first segment stout, second shorter and narrower, third elongate sub-

cylindrical and nearly as long as the fourth to seventh combined, fourth to seventh segments short and subequal, eighth spathulate, slightly longer than the second to fourth combined. Labrum (*f*) sub-quadrate rounded laterally and with prominent setae. Mandibles (*d*) narrowed, somewhat curved and strongly chitinized towards the apex which is pointed. Maxilla (*j*) with the galea and lacinia having many distinct setae, maxillary palpus with the last segment fairly large and not distinctly securiform. Labium sub-qudrate, labial palpus short with the third or apical segment narrow and sub-conical. Pronotum more coarsely punctured than the head, the punctures being also shallower ; pubescence on the pronotum rather sparse and a little longer than that on the head. Scutellum with three or four very minute punctures. Elytra with the punctation minute, rather shallow and very sparse except in the apical one-fourth where the punctures are relatively closer. A few very thin and moderately long nairs are present on the discal region of the elytra ; their number increases slightly towards the basal and external margins and towards the apical one-fourth of the elytron ; a row of rather short and suberect hairs runs near and parallel to the external margin of the elytron. Underside with rather minute and sparse punctures and thin, short, and sub-depressed and rather sparse pubescence except on the distal parts of the legs and the last visible abdominal sternite where the hairs may be more close. Hind legs (*b*) with the femora relatively broad and slightly produced on the inner margin ; tibiae slender ; claw (*c*) with a sub-quadrate basal tooth. The last or the fifth abdominal sternite long (like the first abdominal sternite) and apically subrounded in both the sexes (*e*). Male genitalia with the penis (*l*) narrowed and convex distally and pointed at the apex ; two bunches of hair, each containing two or three hair, arise from a little above the middle of the penis ; parameres apparently wanting ; trab and sipho (not figured) long and narrow. Female with the genital plates (ninth sternite) elongate, each with a small, narrow, papilliform process at the apex (*k*) ; the tenth tergite subtruncate distally (*h*) ; spermatheca relatively broad at the base, narrowed and strongly arched distally.

Length 1·75-2·00 mm. ; width 1·52-173 mm. ; altitude 0·09-1·00 mm.

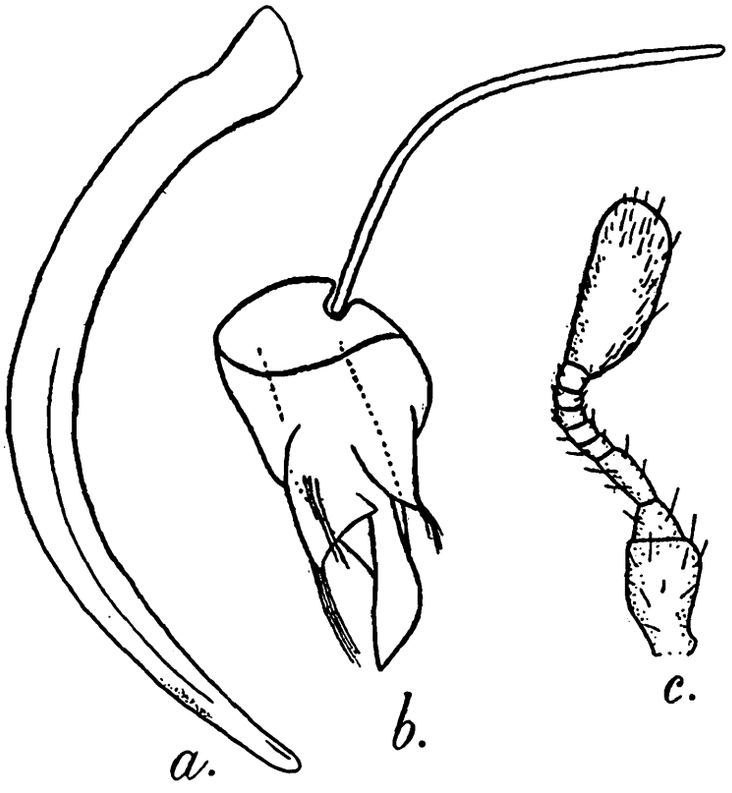
*Holotype.*—INDIA—Jeolikote, Nainital (Uttar Pradesh), predating upon citrus white-fly nymphs, 21.v.1952 (*Z. A. Siddiqi*). A male (genitalia dissected and mounted with the abdomen between two cover-slips and attached to the specimen), in the Zoological Survey of India (Z.S.I.), Indian Museum, Calcutta (Registered No. 9641/H4).

*Allotype* and 5 *Paratypes.*—All females with the same data as the holotype (on some specimens date of collection is 19 v.52 ; some with parts dissected) in Z.S.I. and the Indian Forest Research Institute. One paratype in Z.S.I. with entirely castaneous head and pronotum.

*Remarks.*—The species can be easily separated from the other species by colour differences as given in the following key, the structure of the

antennae, especially by the length of the fourth segment being subequal to the fifth, sixth or seventh segment; the eighth segment in other species is longer than the second to seventh combined while in the present species it is much shorter being equal to the second to fifth combined. It can be further distinguished by the structure of the male genitalia. In the only other Indian species, *C. parcesetosa*, the penis is asymmetrical and the parameres, which are present, are also unequally developed, one being much shorter than the other (Text-fig. 2, *b*); the sipho (*a*) in *C. parcesetosa* is more stout.

The antennae in *C. parcesetosa* may be nine segmented (*c*); this fact and the relatively smaller size of the species now described would




TEXT-FIG. 2.—*Catana parcesetosa* (Sicard);
*a*,—sipho, *b*,—male genitalia (except sipho); *c*,—antenna.

necessitate a more detailed study based on more extensive material of the genus *Catana* and other closely related genera.

## KEY TO THE SPECIES OF *CATANA* CHAPIN.

The four species included in the genus may be distinguished by the following key which is based on Chapin's original key.

| | |
|---|---|
| 1. Uniformly pale, yellow-brown (India) . . | *parcesetosa* (Sic.) |
| Upper parts wholly or partly piceous . | 2 |
| 2. Pronotum piceous or castaneous, elytra entirely piceous or black (India) . . | *chapini*, sp. n. |
| Pronotum deep piceous, elytron with a large castaneous spot | 3 |
| 3. Pronotum rathe densely hairy at sides; spot on elytron elliptical (Philippines) . . . . | *spilota* (Ws.) |
| Pronotum sparsely but evenly hairy; spot on elytron reniform (Malaya, Sumatra) | *clauseni* Chapin |

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