SOME INSECTS OF CYCAS IN NEW GUINEA

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NOT much was known in the past of insects associated with *Cycas* plants, which are quite often planted in tropical ornamental gardens. R. Lepesme (4) recorded the Coccid *Hemiberlesia lataniae* Sign. (4. p. 208), *Duplachionaspis inday* Banks (4. p. 238), *Fiorinia fioriniae* Targ. (4. p. 242), *Saissetia hemisphaerica* Targ. (4. 251) and some weevils of the Genus *Rhynchophorus* as pests of *Cycas*. Kalshoven (3) mentioned two Coccids (*Aonidiella aurantii* Marsh, *Leucaniodiaspis azadirachtae* Gr.) a Lycaenid (*Catochrysops pandava* Horsf.) and the Asiatic Rhinoceros Beetle (*Oryctes rhinoceros* L.) damaging *Cycas* in Indonesia.

The common *Cycas*, *Cycas circinnalis*, s. sp. *papuana* (F. Muel.) Shuster, is widely distributed in the mainland of New Guinea. To the best of our knowledge, nothing has been recorded so far of insects associated with this plant in the Territory of Papua and New Guinea.

During July, 1956, it was noticed between the Erap and Ramu Rivers, Markham Valley, that *Cycas circinnalis* was being completely defoliated by larvae of the Lycaenid butterfly *Chilades cleotas*, s. sp. *kaiphas* Fruhst. together with the larvae of a saw fly.

Butterfly larvae pupated and adults emerged but the saw fly larvae were not reared successfully.

Heaviest infestation was occurring on *Cycas* plants which have been recently burnt and were carrying a crown of succulent foliage although feeding was also taking place on mature leaves. In no case was a palm seen where both the *Chilades* larvae and the saw fly were feeding together. Fig. 1 shows the larva of *Chilades cleotas* and Fig. 2 shows the saw fly larva with the typical injury of the insects to the leaves of *Cycas*. A severely damaged *Cycas* plant by *Chilades cleotas* is seen on Fig. 3.

The slow flying adults of *Chilades cleotas* show a remarkable sexual dimorphism, which is so typical of many Lycaenids. The upper surface of the wings of the males is dark blue and they have a large, reddish-orange coloured transverse band before the anal portion of the hindwings. The transverse band is somewhat larger on the hindwings of the females and the blue parts of

Fig. 1.

the wings—in the case of s. sp. *kaiphas* Fruhst.—are darker blackish-blue, the centre of the forewings being more blue and the marginal parts more black. (see 6, plate 152.)

Chilades cleotas has several closely related geographical varieties (s. sp.) in the Territory of Papua and New Guinea and on some adjacent islands (6, p. 927). The name-form *Chilades cleotas cleotas* is known from the Bismarck Archipelago. The lower sur-

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face of a male specimen of the name-form is seen on Plate I (Fig. *d*). The New Guinea Mainland form, *Chilades cleotas kaiphas* Fruhst., is distinguished by a very broad reddish-orange transverse band on the hindwings. The sub-species has very typical specimens in the Morobe District. Fig. *a* and *b* of Plate I, shows the upper and lower surface of the male and Fig. *c*, the upper surface of the female of the race, found on Bougainville Island.

Szent-Ivany found *Chilades cleotas* in large numbers in the ornamental garden of Mr. C. Sandford at Numa Numa Plantation, where the adult butterflies were mainly attracted by the bright coloured blossoms of bougainvillea shrubs. In 1955 Szent-Ivany found this species in many places between Kavieng and Namatanai along the East Coast of New Ireland. It was very frequent in the ornamental garden of Mr. C. Bat at Kapsu Plantation. Many adults were observed in July, 1955, at Tomalabatt Coconut Plantation at Tatau Island in the Tabar Group.

So far no damage was recorded to *Cycas* by the above-mentioned insects apart from the observation in the Morobe District, but the defoliation of *Cycas* plants in this area was extremely severe. It is thought that the repeated heavy attack of these two insects could exert some measure of control on *Cycas circinnalis* and further observations should be made in this direction in other parts of the Territory.

Fig. 2.

Fig. 3.

Four other insects, a Pyralid, a leaf beetle and two small Curculionids were found by Ardley causing injury to *Cycas circinnalis*, all of them in the Morobe District.

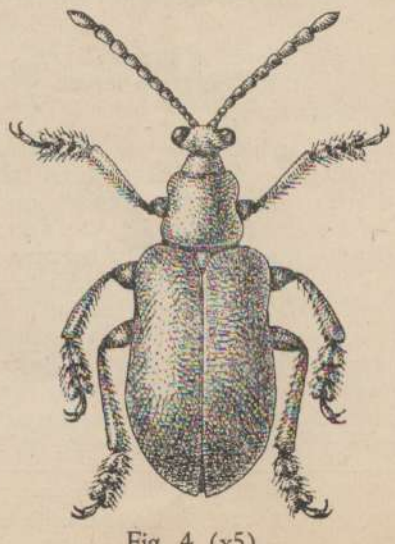
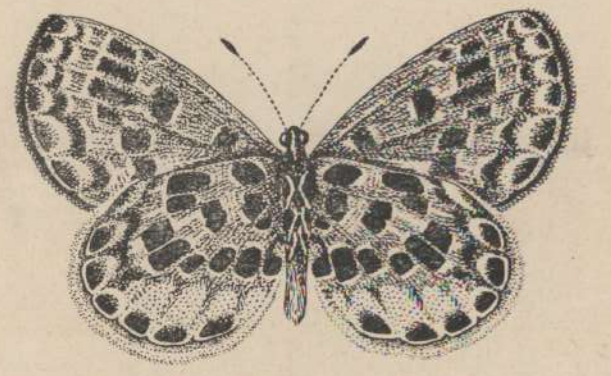


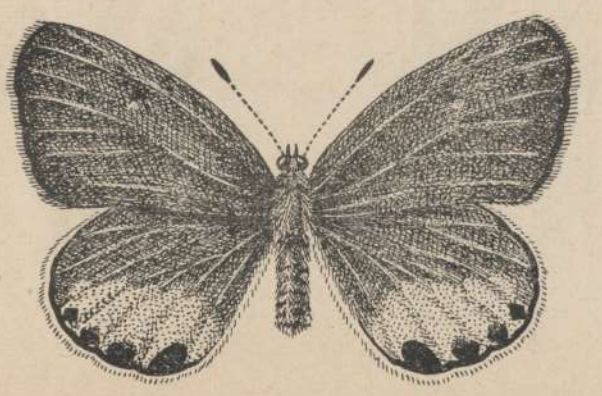
Fig. 4 (x5).

PLATE I.

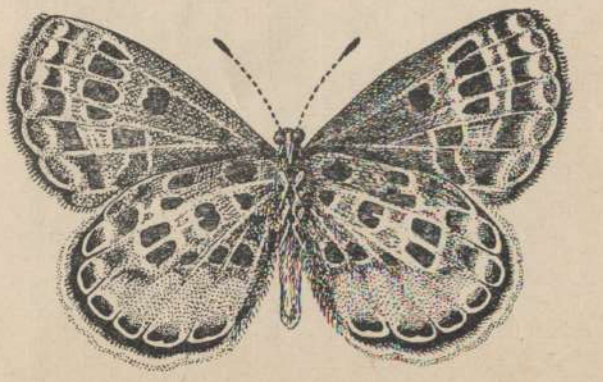
a (x2).



b (x2).



c (x2).



d (x2).

The Pyralid, *Calguia defiguralis* (Walk) (Det. W. H. T. Tams) was observed attacking *Cycas* at Nadzab in August, 1956. The larvae were found in the bases of the petioles, particularly in the young fronds in the centre of the plant, and the webbing and faeces formed a thick protective mass with the larvae actively feeding beneath.

The Leaf Beetle *Crioceris clarkii* B. Baly var. ? [See Fig. 4 (Det. G. E. Bryant)] a pest of *Cycas* seems to have a large area of distribution in the Morobe District. It was found in large numbers at Nadzab and also at Mumeng along the road to Bulolo and it is beileved that this Criocerid is widely spread throughout the length and the breadth of the Markham Valley. The larvae were seen congregating on the newly unfurled fronds of *Cycas* plants in a manner characteristic of many leaf beetles. They hide under a mass of faeces which sticks to the recurved spines of the dorsal surface of their abdomen. *Crioceris clarkii* usually attacks new growth after bush and grass-fires.

The Genus *Crioceris* is cosmopolitan, Essig recorded 148 named species in 1942 (1, p. 595). Two species (*C. asparagi*) (Linne) and *C. duodecimpunctata* (Linne) are well known pests of *Asparagus* spp. in Europe and they were also introduced to the United States (5. p. 550-551).

The two small Curculionids are species of a Genus which is not represented in the British Museum. Both attack the male cone of the *Cycas* and eat out the central axis of the cone. Ardley found the weevils on newly emerged cones digging their way in and feeding on a sticky exudate on the outside. All mature cones are a mass of weevils inside the central axis and aMicro-hymenopterous parasite and a predatory Histerid beetle were found associated with them.

The parasite was identified by Mr. R. D. Eady of the Commonwealth Institute of Entomology as *Eupelmus* sp. and the predatory Beetle was identified by Mr. Bryant as *Platysoma condylum* Marshall.

The writers are much indebted to Dr. W. J. Hall, the Director of the Commonwealth Institute of Entomology, to Sir Guy Marshall, Mr. W. A. T. Tams, Mr. G. E. Bryant and Mr. R. D. Eady of the British Museum, London, for identification of insects. Also to Mrs. M. L. Szent-Ivany for the drawings.

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Port Moresby: W. S. Nicholas, Government Printer.—67/7.58.—1,500.