

DEPARTMENTAL NOTES

THE PAINTED BAGRADA BUG (BAGRADA PICTA)

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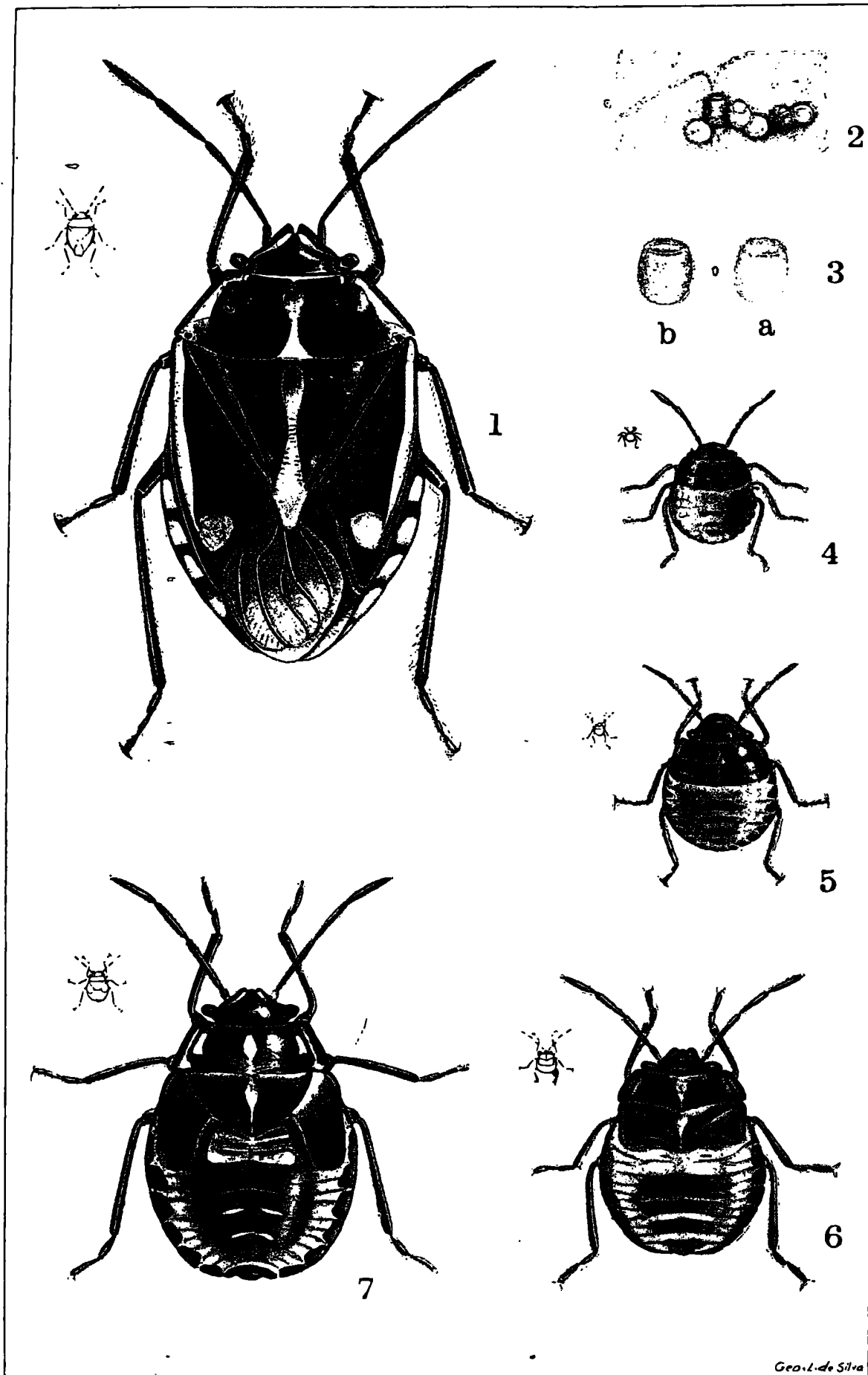
GOVERNMENT ENTOMOLOGIST

NATURE OF DAMAGE

DURING the past year or so there have been numerous requests for advice on the control of the "small black beetle which has been eating holes in the leaves" of cabbage and other cruciferous plants in vegetable plots. Specimens received with these inquiries have shown that the culprits were not beetles but small plant-sucking bugs (*Bagrada picta*) belonging to the family *Pentatomidae*. The holes in the leaves had evidently been made by small caterpillars and not by these bugs, which are incapable of eating the leaves and can only pierce the epidermis and suck up the plant juices from within through their slender beaks. This type of feeding is done by all stages of the bugs which, when abundant, are able to cause serious wilting and sometimes the death of young plants. Later on unless controlled they may spoil the heads of cabbages and cauliflowers grown at higher elevations or ruin a seed crop of mustard in the low-country. On one agricultural station a young crop of mustard was wiped out by these bugs and had to be ploughed in, while on another the attack came on at a later stage and the seed crop was seriously reduced by this pest.

FOOD PLANTS

So far, these bugs have known to feed and breed only on various cultivated plants belonging to the *Cruciferae*, which include cabbage, cauliflower, knol-khol, turnip, radish, mustard, etc. When very numerous in vegetable gardens they have been known to get on to ornamental garden plants in the neighbourhood without, however, doing any noticeable injury. In one instance they were collected in thousands from a young papaw clearing where they were reported to have killed off acres of seedlings, but the drought may have been mainly responsible for the failure of the plants. The possibility of alternate wild host plants has to be considered, but there seems to be no definite evidence on this point so far.



The Painted Bagrada Bug (*Bagrada picta*).

Fig. 1. Adult bug. Fig. 2. Eggs, yellow, freshly laid; pink near hatching. Fig. 3. *a.* freshly laid; *b.* near hatching. Fig. 4 to 7. Bugs of second, third, fourth and fifth instars, respectively.

Fig. 2. enlarged five times, all other figures enlarged ten times.

(Outline figures show natural sizes.)

LIFE HISTORY

In the case of the nine pairs under observation at Peradeniya the life of the females ranged from 20 to 77 days with an average of about 44 days, while the males averaged about 74 days with a range of 44 to 96 days, when kept supplied with food; in every instance the males outlived the females. Mating usually began within a day or two after the two sexes attained the adult stage, but occasionally this was delayed until two or three days later. Mating was observed to take place at frequent intervals during the life of the female. The first eggs were usually laid within a week or so after the female became adult, but in the case of one female the pre-oviposition period was 15 days and in another 21 days. The number of eggs per female ranged from 92 to 217, with an average of 147 for the 9 females. Eggs are usually laid singly at the rate of a few almost every day, but occasionally the interval between each oviposition was longer. Under field conditions the eggs are laid scattered about on the surface of the leaves, leaf-ticks or stems. The eggs are pale-yellow when freshly laid (fig. 3a), but turn pinkish before hatching (fig. 3b). During a heavy infestation, single eggs laid at different times may be placed close to each other so as to form small clusters, as shown in figure 2.

The eggs hatch within 5 to $8\frac{1}{2}$ days, the average incubation period being about 6 days. The young bugs develop rapidly and, after passing through five instars (four of which are shown in figures 4 to 7), attain the adult winged stage (fig. 1) in about 3 to $3\frac{1}{2}$ weeks on the average, so that the total life-cycle from egg to adult sometimes occupied less than 4 weeks at Peradeniya; under field conditions in the low-country it may be even shorter, but probably longer at higher elevations. Owing to the comparatively long life of the females and due to the fact that they usually lay their eggs at frequent intervals throughout their lives, one very soon gets, under natural conditions, an enormous number of bugs in all stages of development, this population being made up of at least two or three overlapping generations. These bugs continue to increase at an alarming rate, given a plentiful food supply and other favourable conditions, unless measures are taken to control them.

CONTROL MEASURES

The ability of *Bagrada picta* to breed so rapidly under suitable conditions emphasises the importance of controlling this pest in the early stages of an attack. Usually at such times the bugs escape detection and within a few weeks have multiplied so abundantly that ordinary control measures become almost impracticable. Growers of cabbage and other cruciferous vegetables at higher elevations and of mustard as a field crop in the low-country should be on the look-out for the first appearance of these bugs and should take immediate precautions to check their increase, since there seems to be no effective natural control.

The prompt application of a soap and water spray made by dissolving 1 lb. of hard or soft soap in 6 gallons of water, or 1 oz. in every 3 pints, will help to control the eggs and younger bugs. This mixture can be

applied with an ordinary hand-sprayer and the main object should be to wet the eggs and bugs thoroughly. Hand-picking the younger stages into tins or chatties of water with a film of kerosene is also effective before the insects get too numerous. The adult bugs, on account of their activity and ability to escape in flight, are always difficult to control, and the use of an ordinary paddy-fly hand-net is useful for catching the winged adults, which can be turned out of the net into a kerosene tin half full of water with a little kerosene on the top.

My acknowledgments are due to Mr. T. P. Bonny, former student assistant in entomology, for his work on the life-history and³ control of this pest.

**ANIMAL DISEASE RETURN FOR THE MONTH
ENDED 31 AUGUST, 1935.**

Province, &c.	Disease	No. of Cases up to Date since Jan 1st 1935	Fresh Cases	Recoveries	Deaths	Balance Ill	No. Shot
Western	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	43	...	43	...	...	...
	Anthrax	...	...	...	...	...	...
	Rabies (Dogs)	13	2	...	...	...	13
	Piropasmosis	...	...	...	...	...	...
Colombo Municipality	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	10	...	9	1	...	...
	Anthrax	2	...	...	2	...	...
	Rabies (Dogs)	18	4	...	...	...	18
	Haemorrhagic Septicaemia	...	...	...	...	...	...
	Black Quarter	...	...	...	...	...	...
Cattle Quarantine Station	Bovine Tuberculosis	...	...	...	...	...	...
	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease Anthrax (Sheep & Goats)	69	3	...	69	...	...
Central	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	1	...	...	...	...	1
	Anthrax	3	...	...	3	...	...
	Black Quarter	18	...	...	18	...	...
	Bovine Tuberculosis	8	...	...	...	...	8
Rabies (Dogs)	2	...	...	...	...	2	
Southern	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	...	...	...	...	...	...
	Anthrax Rabies (Dogs)	FREE	...	...	...	...	...
Northern	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	...	...	...	...	...	...
	Anthrax	FREE	...	...	...	...	...
	Black Quarter Rabies (Dogs)	...	...	...	...	...	...
Eastern	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	40	...	40	...	...	...
	Anthrax	...	...	...	...	...	...
North-Western	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	105	...	100	5	...	...
	Anthrax	...	...	...	...	...	...
	Rabies (Dogs)	18	1	...	2	...	16
Piropasmosis	...	...	...	...	...	...
North-Central	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	559	258	423	...	136	...
	Anthrax	...	...	...	...	...	...
Uva	Rinderpest	...	...	...	...	...	...
	Foot-and-mouth disease	85	...	84	1	...	...
	Anthrax	...	...	...	...	...	...
Sabaragamuwa	Bovine Tuberculosis	...	...	...	...	...	...
	Rinderpest	...	...	...	...	...	...
	Foot and mouth disease	...	...	...	...	...	...
	Anthrax	...	...	...	...	...	...
	Piropasmosis	2	...	1	1	...	...
Haemorrhagic Septicaemia	9	...	2	7	...	...
Rabies (Dogs)	5	...	...	...	...	5	

METEOROLOGICAL REPORT AUGUST, 1935.

Station	Temperature				Humidity		Amount of Cloud	Rainfall		
	Mean Maximum	Difference from Average	Mean Minimum	Difference from Average	Day	Night (from Minimum)		Amount	No. of Rainy Days	Difference from Average
	°	°	°	°	%	%	Inches		Inches.	
Colombo	84.1	- 0.6	76.0	0.3	76	86	7.6	7.87	21	+ 5.23
Puttalam	86.0	0	77.2	- 0.4	74	84	6.5	0.77	5	+ 0.52
Mannar	87.0	- 0.9	78.3	- 0.1	76	84	5.5	0	0	- 0.49
Jaffna	86.0	+ 0.6	78.8	+ 0.3	77	82	5.2	0.23	2	- 0.81
Trincomalee	92.1	+ 0.8	76.5	- 0.2	64	82	7.0	9.70	13	+ 6.19
Batticaloa	89.2	- 1.1	76.0	- 0.2	66	84	6.8	2.91	11	+ 1.11
Hambantota	87.0	+ 0.9	75.6	+ 0.1	74	88	5.4	1.26	11	+ 0.22
Galle	82.2	- 0.3	76.2	+ 0.2	81	86	6.0	6.46	16	+ 1.29
Ratnapura	86.1	- 1.0	73.4	- 0.5	77	95	6.8	14.91	26	+ 4.31
A'pura	92.6	+ 1.5	75.4	+ 0.2	62	88	7.0	0.60	7	0.64
Kurunegala	87.1	- 0.4	74.2	- 0.4	69	86	7.4	4.30	17	+ 1.59
Kandy	83.1	+ 0.4	69.6	- 0.4	74	87	7.1	5.70	18	+ 0.23
Badulla	86.4	+ 0.3	63.9	- 0.4	64	94	5.9	4.05	14	+ 1.34
Diyatalawa	77.7	- 0.4	61.7	+ 0.1	62	78	6.5	1.66	9	- 1.38
Hakgala	69.6	- 0.6	57.3	+ 0.1	76	86	6.2	5.29	19	+ 0.26
N'Eliya	66.3	- 0.4	53.6	- 0.5	85	94	7.9	6.81	20	- 0.85

The rainfall for August was appreciably above normal in the south-western low-country, generally below normal in the hills, and generally above in the south and east of Ceylon. In the north-west deficits were rather more numerous than excesses, both however being small. The highest monthly totals were nearly all from or near the Ginigathena Pass, Kenilworth recording 29.12 inches, while totals of 20 inches or over were reported from Watawala, Norton Bridge, Blackwater, Carney, Maliboda, Kellie, Theydon Bois, and Padupola. Very few stations reported no rain at all for the month, but a large number, chiefly in the north-west, on the eastern slopes of the hills, and in the south-eastern corner of the Island, recorded totals under 2 inches.

Only two daily falls of 5 inches or over were recorded, 6.25 at Kenilworth on the 25th-26th and 5.80 at Bandaragama on the 19th-20th.

The usual south-westerly barometric gradients were experienced during the month. Up to the 19th the rainfall in the south-west was fairly light. After that, however, the monsoon rains increased, and some fairly heavy falls were reported until the end of the month. In the dry zone local thunderstorms occasionally gave heavy rain.

Temperature, humidity, and cloud showed generally no marked deviations from average. The barometer was above normal, particularly in the north-west and north. Wind strength at the coast was on the whole about normal, while its direction was mainly S.W. or W.S.W.

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