3. The larva eats the leaves of burdock (Arctium lappa L.) and thistle (Carduus crispus L.) belonging to Compositae, being unable to complete the perfect life cycle on the both leaves. The feeding tests were carried out on the other plant leaves of fourteen species in six families, but all of them were negative. The larva, however, showed the positive preference to the potato-tubercle and could grow until the second instar.

4. The older instar becomes more polyphagous than the younger one. The shorter the period of the fourth instar becomes, the more the curve showing its feeding feature simplicates (Fig. 4).

5. The food value for the fourth instar is assumed as the following order (Table 5).

Potato > Black night shade (Solanum nigrum L.), Tomato, Thorn-apple (Datura Tatula L.) > Egg-plant > Pumpkin > Burdock (Arctium lappa L.)

6. The writer has discovered that the larva can ingest its own eggs and grows to finish the whole life, further some larvae are grown by feeding its own pupae to reach the second or the third stage (Table 6). This fact suggests that the Epilachnid beetle has originated from the Coccinellid one which shows sarcophagy.

7. Aberrant forms of the beetle were found from individuals grown on the several foods (Fig. 5, 6).

8. The larval preference to the foods may be effected by an unknown volatile attractant contained commonly in the available foods but is thought to have more or less relation to the mechanical structures of the food surface and to the biting ability of the larva.

9. The potato-leaf brings the best result on the breeding of the beetle. The black night shade and Scopolia japonica, when the potato-leaf wants, can be used for the food, as well as the tomato and the thorn-apple; the former two species suit better than the latter. In addition to the above foods, the egg-plant, the cucumber, the pumpkin, and the potato-tubercle are suitable enough for the food, if they are given to the larva in the older stage.

On Thysanoptera from Sikoku with Description of a New Species. Mikio Kurosawa (Agricultural Experimental Station, Nihon Tokushu Noyaku Seizo K. K., Hino, Tokyo).

16. 四国アザミウマ 黒沢三郎男 (日本特殊農業製造株式会社農事試験場) 31. 11. 2 受理

Since the collectings of thrips have not sufficiently been carried out in this locality, the Thysanopterous fauna is very poor, but in this paper 14 species are represented one of which is described as new to science. For the material upon which these descriptions are based, I am indebted to Messrs. S. Kono, K. Sato, K. Obayashi, H. Ishikura, I. Kamioka and K. Morikawa. The type specimens are deposited in the writer's collection. Suborder Terebrantia. Family Thripidae

1. Thrips japonicus Bagnall.

Habitat: Baishinzi near Matsuyama, 5 ♀♂ in silverberry flower, 23. X. 1939 (K. Sato); Tokushima, 22 ♀♂, 2 ♀♂ in Japanese medlar flower, 23. XI. 1955 (M. Kurosawa).

2. Thrips oryzae Williams

Habitat: Dogo near Matsuyama, 36 ♀♂, 7. ♀♂ on rice plant, 19. VI. 1930 (S. Kono).

3. Thrips tabaci Lindeman

Habitat: Zentsūji, 10 ♀♂ on onion, 20. IV. 1948 (H. Ishikura); Baishinji near Matsuyama, 2 ♀♂ in silverberry flower, 23. X. 1939 (K. Sato).

4. Thrips setosus Moulton
5. *Thrips hawaiiensis* Morgan
Habitat: Baishinji near Matsuyama, 30 ♀♂ in silverberry flower, 5. VIII. 1940 (K. Obayashi); Tokushima, 5 ♀♂ in Japanese medlar flower, 12. XI. 1955 (M. Kurosawa).

6. *Microcephalothrips abdoimnalis* Crawford
Habitat: Kagawa, 2 ♀♂ in wild chrysanthemum flower, 17. VIII. 1943; Tokushima, 5 ♀♂ in chrysanthemum flower, 23. XI. 1955 (M. Kurosawa).

7. *Frankliniella formosae* Moulton
Habitat: Matsuhomura, Iyo, 1 ♀ in wild chrysanthemum flower, 23. VIII. 1943 (I. Kamioka); Tokushima, 10 ♀♂ in rose flower, 12. XI. 1955 (M. Kurosawa); Matsuyama, 5 ♀♂ in morning flower, 8. XI. 1953 (M. Kurosawa).

8. *Taeniothrips distalis* Karny

Habitat: Matsuhomura, Iyo, 3 ♀♂, 2 ♂♂ in cotton flower, 23. VIII. 1943 (I. Kamioka).

10. *Haplothrips floricola* Priesner
Habitat: Matsuhomura, Iyo, 2 ♂♂ in silverberry flower, 23. X. 1939 (K. Sato).

11. *Haplothrips chinensis* Priesner
Habitat: Matsuhomura, Iyo, 3 ♀♂, 1 ♂ on giant knotweed, 23. VIII. 1943 (I. Kamioka).

12. *Haplothrips aculeatus* Fabricius
Habitat: Zentsūji, on wheat ears, 20. IV. 1948 (H. Ishikura).

13. *Liothrips floridensis* Watson
Habitat: Matsuyama, 5 ♀♂, 2 ♂♂, 18 larvae, on camphor tree, 7. X. 1951 (K. Morikawa); 7 ♀♂, 1 larva, 12. XII. 1950 (M. Kurosawa).

14. *Gigantothrips harukawai* sp. nov.
Female (macropterous): Length about 5.3 mm. Colour coal brown; fore and middle tibiae shading yellowish in the distal fourth; hind tibiae shaded with yellowish in the distal half; all tarsi yellowish brown, with a dark spot at the tip. Antennae with joints I—II dark brown, III—VI yellow, III—IV shaded with brown in the extreme tip, V shaded with brown in the distal fourth, VI shaded with brown in distal half; VII—VIII dark brown. Wings transparent, with a brown median vein, the scale of forewing brown; tube concolorous with head, slightly lighter at apex. Setae on body yellowish brown.

Head (Fig. 1-1) long, its total median dorsal

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Fig. 1. *Gigantothrips harukawai* sp. nov., holotype. 1, head and prothorax. 2, right antenna. 3, first abdominal tergite “chervon”. 4, 9th and 10th abdominal segments.
length about 2.1 times its greatest width, which is across the basal fourth; cheeks nearly parallel, narrowed slightly behind the eyes and swollen at the basal fourth, again narrowing to the basal collar; without ordinary setae on the cheeks; dorsal surface of head with closely striate; vertex conical in form, slightly overhanging, bearing the median ocellus at its extremity, not extending to frontal costa; interocellar setae very long, situated outside of the ocellar triangle, 125µ long, with dilated tip, about 87µ apart at their base; postocular setae about half the length of eyes, 100µ apart, with slightly dilated, distance from the posterior margin of the eyes 25µ; a pair of laterals behind the eyes 65µ long; dorsal cephalic setae longer than postoculars, 140—150µ long, 85µ apart and situated about midway between the interocellar seta and the base of head. Eyes normal, with minute facets, and inner margin somewhat concave opposite posterior ocelli, their length about one-fourth that of head, in holotype 210µ long, 130µ wide and 65µ apart. Ocelli of posterior pair about 40µ in diameter, interval 55µ, distance from median ocellus 100µ, the latter 25µ in diameter. Antenna (Fig. 1-2) about 2.2 times as long as the head, very slender, chaetotaxy and shape of the joints as shown in the figure; joint III about 9 times as long as wide; IV about 6 times as long as wide; a sense area on joint II near the distal margin and placed on small tubercle; formula of sense cones as follows: III, 1—1; IV, 2—2; V, 1—1; VI, 0—1; VII with one on dorsal. Mouth cone rounded at apex, extending about 250µ beyond dorsal margin of head. Prothorax small, very shorter than head, about 0.4 times as long as head and 1.8 times as broad as long; pronotum with a long apodema in the middle; all prothoracic setae present, with blunted tips, their length as follows: anterior marginals 65µ, anterior angulars 90µ, mid-laterals 130µ, epimerals 170µ, posterior marginals 160µ, coxals 75µ. Pterothorax very broad, about 1.9 times as broad as prothorax except coxae; meso and metascutum with feebie sculpture; metascutum with a pair of long setae on anterior margin, its length 325µ and 200µ apart. Fore wing long, broad, pointed at tip, with a brown median vein which extending to the distal third; with very closely black fringes, with 64—67 accessory hairs; three subbasal setae similar in shape to prothoracic setae, their lengths B.1, 140µ, B.2, 150µ, B.3, 225µ, yellowish brown in colour. Hind wings similar to fore wings in shape, and colour. Legs long and slender; the fore femur with several major setae, slightly dilated tips and arising from low tubercles, two of them on outer margin; fore tarsus with a tiny tooth which is invisible. Abdomen long and slender, narrower than metathorax, broadest near base of segment II, with sides straight and tapering from segment II to the base of tube; tergum I with clearly sculpture area, chevron in form (Fig. 1-3), other tergum with feebie sculptures; setae long, most of them pointed and brownish in colour; tergum II—VII with two pair of sigmoid, wing-retaining setae; IX with a row of six short setae on median dorsal and one pair of pore, their lengths subequal, 45—50µ; major setae on posterior margin, pointed at apex, measuring as follows: B.1, 310µ, B.2, 265µ (broken at tip), B.3, 250µ. Tube (Fig. 1-4) very long, about 1.4 times as long as head, and 6.3 times as width at base, which is 1.5 times the width at apex; sides nearly straight, slightly narrowed at apex; covered with many short setae which are about two-thirds the width of apex; terminal setae broken off in the specimen. Measurements of female (holotype) in mm; Length about 5.3 (fully distended 7.2); head, median dorsal length 0.777 (from the frontal costa to the base of head), length 0.685 (from the anterior margin of eyes to the base of head), width across eyes 0.345, least width behind the eyes 0.315, greatest width across cheeks (at the basal fourth) 0.360, width across the base of head 0.340; prothorax, median length of pronotum, 0.305, greatest width (except the coxae) 0.555; mesothorax width, 0.962; metathorax width 1.036; fore wing, length 3.075, subbasal width 0.204, width near middle 0.240; abdomen greatest width (at the base of segment II) 0.925; tergum IX, median length 0.225; tube, length 1.144, greatest subbasal width 0.180, least apical width 0.115; total length of antenna 1.560.
青虫雛名博士の古稀を祝賀し仰る。
林業苗畑に棲息害するコガネムシ類について、高野有久（農業試験場 保護部 昆虫科）31. 11. 6 受理

林業苗畑に棲息害するコガネムシ類の種類及びその発生消長を知るために、成虫に対しては青色蛍光誘導灯を苗畑附近に点灯測定し、卵虫に対しては苗畑の卵取り調査を行った。また苗木に対する加害時期及び被害率調査は、卵虫の棲息密度調査と平行して行い、コガネムシ類幼虫の棲息密度の季節的変化についても地層の調査と共に年に年掲取り調査を行い、それらについて考察を行った。
以上は苗畑に棲息害するコガネムシ類幼虫の質量及び生態の調査研究によって、合理的な防除研究の基礎資料を得としたものである。

Ecological Studies of May-beetles in the Forest Nursery. Sukehisa Asa (Division of Entomology, National Forest Experiment Station, Tokyo). Received Nov. 6, 1956. Botyu-Kagaku, 22, 97-104, 1957, (with English résumé, 103).

17. 苗畑に棲息害するコガネムシ類について。 髙野有久（農業試験場 保護部 昆虫科）31. 11. 6 受理

防虫科学 第22巻1号

Antennal
segments I II III IV V VI VII VIII
Length in µ 115 90 475 355 300 215 100 95
Width in µ 82 55 55 60 50 40 35 20
Holotype: 1♂, Kurono, Kōchi-ken, 11. VII. 1939
by K. Ohayashi.
Host plant: Unknown.
Type locality: Tosanokuni, Shikoku, Japan.

This species may be easily separated from all other species of the genus Gigantothrips by the following characters: the presence of the major setae on the fore femur, the prolonged intermediate joints of antenna, the long, cephalic setae on the head, the presence of four sense cones on the third antennal joint and with long tube that is about 5 times as long as the ninth abdominal segment.

The above characters are possibly of new generic value, therefore I will be confirmed as the generic rank when a good series of this species are obtained.

I take pleasure in naming this species after Professor C. Harukawa who is a famous applied entomologist.