

Botanobia (= *Oscinis*) *insularis*, sp. nov.

Female: Black, slightly shining. Head yellow; frontal triangle black, slightly shining, the surface covered with gray dusting; third joint above, and both basal joints brown; proboscis glossy brown on basal portion; occiput concolorous with triangle. Mesonotum unstriped, and like the pleuræ thickly covered with gray pollinosity; scutellum gray pollinose. Abdomen generally yellowish on basal two segments, the others brownish black, shining. Legs yellow; darkened, brownish or blackish, on all coxæ, all femora except apices, indistinctly on mid tibiæ and distinctly on middle of hind tibiæ and apices of tarsi. Wings clear, veins brown. Halteres yellow.

Slender. Frons occupying one-half the head width, orange yellow; triangle as wide as vertex, and not reaching middle of frons, margined with hairs; surface of frons with scattered black hairs; antennæ larger than usual, third joint slightly angular at upper margin of apex, distinctly pilose; arista with basal joints about two-thirds as long as apical portion and thickened, pubescence short but distinct, length of arista equal to width of frons; cheek half as high as width of third joint of antenna; palpi large, almost bare; eyes distinctly higher than long, pubescent. Mesonotum unpunctured, surface with very few weak hairs; scutellum with weak discal hairs and four marginal bristles. Legs normal. Wings with third costal division two-thirds as long as second; veins 3-4 subparallel; last section of fifth vein twice as long as penultimate section of fourth.

Length: 1 mm.

Type: In collection of W. L. McAtee.

Locality: Wallop's Island, Virginia, June 1, 1913. (W. L. McAtee.) Three specimens.

FORMICA EXSECTA IN JAPAN.

BY WILLIAM MORTON WHEELER,

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Among several Japanese ants recently handed to me for identification by Mr. W. M. Mann there are a few specimens representing an undescribed variety of *Formica insecta*. This species, though well known from northern and central Europe and Siberia, has not been taken hitherto east of the Altai Mountains of Mongolia.

Formica exsecta Nylander var. *fukaii* var. nov.

Worker: Length 5-6 mm.

Differing from the worker of the typical form in having the mesonotum in profile straight and sloping gradually to the mesoëpinotal constriction, instead of convex. The notch in the superior border of the petiole is distinctly narrower and shallower, the gaster is darker, being black throughout and not red at the base of the first

segment, and the posterodorsal portion of the head is much less deeply and extensively infuscated.

Described from four specimens taken by Mr. T. Fukai in the Saitama division of Japan.

OBSERVATIONS ON THE RELATION BETWEEN FLOWER COLOR AND INSECTS.

BY E. M. EAST and R. W. GLASER.

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In 1909 a cross was made between the small red flowered *Nicotiana forgetiana* Hort (Sand) and *Nicotiana alata* Lk. and Otto var. *grandiflora* Comes, the large white N. affinis of horticulture, for the purpose of studying certain problems of heredity. About fourteen thousand plants of the second, third and fourth hybrid generation have been grown, and it has been established beyond a reasonable doubt that each plant is completely self-sterile though it crosses easily with any of its neighbors. Several hundred carefully controlled self-pollinations have not yielded a single seed, while histological studies have shown self-fertilization to be practically impossible. On the other hand, hundreds of artificial cross pollinations have yielded capsules full of seed in almost every instance, showing with what ease cross-fertilization takes place, for artificial pollination is usually not as successful as natural pollination. The fact that every capsule formed naturally on these plants must have resulted from a cross-pollination produced by an insect, serves to excuse our adding to the already huge literature on the relations between insects and plants. The sixteen different color forms that have segregated from the original cross permit observations on the percentage of flowers cross-fertilized and the selective value, if any, of distinct color varieties.

Our knowledge of the behavior of insects relative to flowers has been greatly extended during the past few years by the work of Plateau, Forel, Lovell, Grænicher and others, but it has resulted in that obscurity which precedes aggregation and precipitation by disclosing the marvelous complexity of the relation. The adjustment between certain insect forms and certain types of flowers is



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