substance yielding yellow solutions was also present in the hypodermis, but it is doubtful whether it contributed greatly to the color pattern.

With the exception of the early work of Physalix[2] on the red pigment in the bug *Phyrrhocous apterus* L., this is the first definite identification of carotin in Hemiptera and establishes for the first time the biological origin of carotin in an insect in a manner analogous to the identification of the source of carotin in cattle in an earlier experiment by one of us.[3]

112 (2344)

Anthocyanin and flavone-like pigments in phytophagous and predaceous forms of Hemiptera.

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The identification of carotin as the chief cause of the red and yellow hypodermal colors seen in the predaceous stink-bug *Perillus bioculatus* (Fab.), reported in the preceding abstract, suggested an examination of the red pigment of other Hemiptera. It was found that red pigment in phytophagous and predaceous families of this order of insects is not limited to one type of substance. Water-soluble pigments appear to be more common than carotin. The aphid (*Tritogenaphis rudbeckiae,* Fitch) owes its vermilion color chiefly to an anthocyanin-like pigment, although small quantities of carotin also occur in the bug. On the other hand the red color of the red and black patterned phytophagous box-elder plant-bug (*Leptocoris trivitatus,* Say), the milk-weed plant-bug (*Lygaeus kalmii,* Stal), the bladder-nut plant-bug (*Lopidea staphyleae sanguinea,* Kngt.), the maple plant-bug (*Coccobaphes sanguinareus,* Uhler), and the predaceous Assassin-bug (*Eulyes illustris,* Stal) is due to a flavone-like pigment.

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2 Physalix, C., *Compt. rend.*, 1894, cxviii, 1282.

3 Palmer, L. S., and Eckles, C. H., *J. Biol. Chem.*, 1914, xvii, 191.