

## EXPLANATION OF PLATES.

PLATE VII. Fig. 1, pitch nodule on *Pinus virginiana* caused by *Evetria virginiana* Busck; fig. 2, pitch nodules on *Pinus divaricata* caused by *Evetria albicapitana* Busck.

PLATE VIII. Fig. 3, chestnut leaves injured by *Eucosma haracana* Kearfott; fig. 4, twigs of *Quercus palustris* showing spiral mines of *Ectædemia heinrichi*, Busck.

LIFE HISTORY OF EUCOSMA HARACANA KEARFOTT.<sup>1</sup>

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*Protopteryx haracana* Kearfott, Trans. Am. Ent. Soc. Phila., vol. 33, p. 44, 1907.

*Protopteryx resoluta* Meyrick, Ent. Mo. Mag., vol. 23, p. 34, 1912.

During May and early June many leaves of the chestnut in the vicinity of Washington, D. C., are found to be rolled inwards and downwards, as shown in the accompanying photograph, (pl. VIII, fig. 3). These very common and conspicuous rolls are produced by the larvæ of the above species, the life-history of which has hitherto been unknown.

The young larvæ of this species are yellowish white with jet black head and thoracic shield and with black thoracic feet; tubercles small and inconspicuous, hardly darker than the rest of the body and with short white hairs; prolegs normal with a complete circle of small hooks. The full grown larvæ have light yellow head with black eyespots, yellow thoracic shield and feet; length 14 mm. When full grown the larvæ leave the rolls and let themselves down to the ground, into which they burrow and make a tough, parchment-like oval cocoon, in which they remain as larvæ until late fall. In a warm room the moths began to issue early in February; outdoors under natural conditions issuance does not take place before April.



Fig. 2.



Fig. 1.



Fig. 3.



Fig. 4.