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Notes on the Copulation of Bombus Fervidus

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Notes on the Copulation of *Bombus terrestris*.

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O. W. Barrett.

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NOTES ON THE COPULATION OF BOMBUS FERVIDUS.

By DAVID FAIRCHILD AND O. W. BARRETT.

(Plate I.)

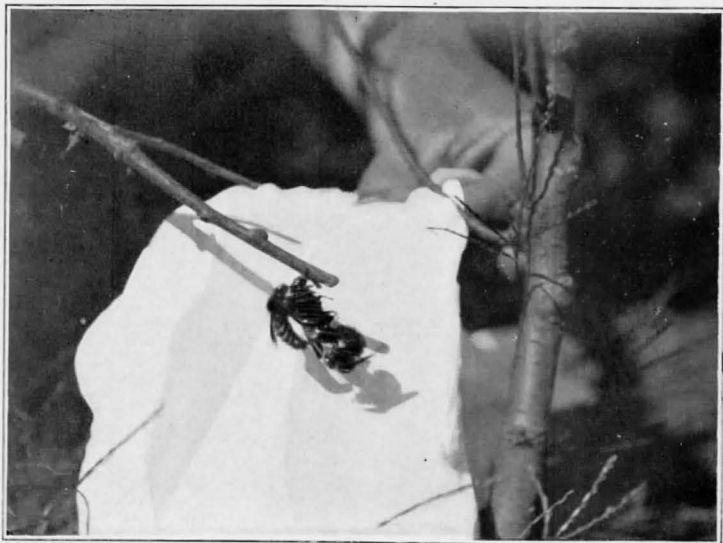
While walking across the nursery plats of the Arlington Farm, about October 13, the writers noticed three individuals of a species of *Bombus* clinging to a young cherry tree about six inches above the surface of the ground. Upon close examination it was found that one male, apparently lifeless, was *in coitu* with a female of the same color but slightly larger size, and upon the back of the female another male was actively endeavoring to copulate. The female clung tenaciously to the stalk and paid little attention to the maneuvers of the male upon her back. The male *in coitu* was suspended by the genitalia only, all the legs being held appressed to the body and motionless. Upon irritation with a straw the latter male evinced life only by buzzing of the wings. The male not *in coitu*, which may be designated as male No. 2, was quick to notice any interference in his actions by means of the straw but could not be induced to leave the body of the female.

Presumably copulation had continued for some little time previous to the finding of the specimens and there was no apparent tendency towards its cessation when the coitus was

interrupted forcibly, although so gently and gradually that the female was not greatly disturbed. Male No. 1, immediately after connection was broken, evinced a desire to leave the female, showing no desire whatever to renew the relations. Rapidly regaining activity he soon rose in the air and slowly flew away.

Male No. 2 left the back of the female as soon as male No. 1 had disappeared, and stationing himself about fifty or seventy-five millimeters directly in front of her began a series of complex marches and short charges towards her. The female, though loath to move, resisted these advances and when male No. 2 continued to approach her she made a short charge toward him, buzzing her wings and waving the prothoracic legs threateningly. This procedure was repeated several times until the female had succeeded in impressing male No. 2 with the idea that further advances would be dangerous; she even fiercely attacked the male once or twice as the result of his charges toward her. The female next evinced a desire for flight and rose in the air once or twice but was struck back upon the ground. Here she remained, apparently in a sullen mood and scarcely responding to the straw irritations. Male No. 2, noticing the female's change of mood and probably scenting trouble through outside circumstances, gradually lost his interest in the case, though he remained close to the female until the last.

Five photographs were taken, each showing the three insects *in situ*. In No. 1 the female is clinging to a weed stem while male No. 1 is suspended by the genitalia and male No. 2 is clinging to the female.



C. PLATION OF BOMBUS FLAVUS.