SUMMARY

1. Various species of northern flowering plants take up and retain radiophosphorus when their stems are put in a solution of this radioisotope.
2. Under laboratory conditions *Aedes communis* males and females visit flowers and ingest plant juices and nectars as shown by their accumulation of P^{32} from the activated flowering plants.
3. Northern mosquitoes have frequently been observed to visit and probe several species of arctic and subarctic flowers. Proof in the present studies that the mosquitoes ingest plant juices lends indirect support to the hypothesis that some arctic mosquitoes may be able to produce viable eggs without a blood meal from a mammalian or avian host.

Literature Cited

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TAGGING TECHNIQUE FOR USE IN FLIGHT RANGE STUDIES OF THE *HIPPELATES* EYE GNAT

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A special technique had to be worked out in order to tag *Hippelates* with a dye. The regular method of tagging and detecting mosquitoes in flight range studies has many pitfalls when it is applied to gnats. The first attempt at tagging was done with a mixture of fluorescein dye and gum arabic applied as a dust to the gnats. Then the dusted gnats were subjected to a very high humidity in order to make the dye-arabic mixture stick. The result was that the gnats stuck to each other. Very few gnats recovered. Next an aqueous solution of the fluorescein dye was sprayed directly on the gnats, but as in the first case, very few gnats recovered from this operation. Next a plain dust of fluorescein dye was applied to the gnats. About 90% of the gnats recovered from the operation, but the fluorescent light would not activate the dye unless it was in contact with water, or had been in contact with water. It was discovered that when the dead gnats were put in water even the smallest particle of dye would go into solution and was detectable with the fluorescent light.

To test this technique about five hundred gnats were dusted with the powdered fluorescein dye and released in the field one hundred feet from a Tinkham Gnat Trap. The next day the catch from the trap was brought into the laboratory, killed and tested. Only a few gnats at a time were put into the water and observed under the mineral light. It was found that some of the gnats had ingested the dye and by crushing them the dye could be detected. By crushing the gnats it was also discovered that some of the very small dye particles were caught in the sutures of the insect. Apparently, the surface tension of the water prevented the wetting of the dye in the sutures. It is planned to try a wetting agent in the water, such as Triton X-100, in order to reach the small dye particles without crushing the gnats.

From the first test out of the hundreds of gnats caught each day 35 gnats were recovered on the first day, the second day no gnats were recovered, the third and fourth day (a week-end) one gnat was recovered, the fifth day one gnat was recovered, the sixth day no gnats were recovered and on the seventh day no gnats were recovered.

Further tests are in progress to determine other phases in the flight range of the *Hippelates* gnat.