

A NOTE ON THE CHAETOTAXY OF *Aedes vexans* (MEIGEN, 1830).¹

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In identifying larvae of *A. vexans* from Minnesota the writer has noticed a great deal of variability in the branching of the upper and lower head hairs. The same seems to be true of the lateral abdominal hairs. These hairs were noticed particularly since they are used extensively as key characters for identification. When the results of the study were compared with those of workers in other areas, some interesting suggestions arose; these form the subject of this paper.

A series of 87 larvae of *A. vexans* were examined and the branches² of the upper and lower head hairs were counted; there were too few lateral abdominal hairs intact for adequate observation. The larvae all appeared to be in the fourth instar and they were mounted in Canada Balsam. The results are shown in the following table:

Hair	Number of Hairs of <i>A. vexans</i> Larvae with (No.) Branches								Total
	1	2	3	4	5	6	7	missing	
Upper head hair	0	7	30	84	37	5	1	10	174
Lower head hair	6	85	68	9	0	1	0	5	174

There was a total of 174 pairs of hairs for study, 87 pairs of upper head hairs and the same number of lower head hairs. Of these 174 pairs there was one hair of the pair missing in 15 cases so that actually only 159 pairs were available for study. Of these 159 pairs, the number of branches in each member of a pair was similar in 98 and was different in 61. This shows that the number of branches in one member of a pair (on one side of the

head) is largely independent of the number of branches in the other member of the pair (on the other side of the head). For this reason each hair was tabulated separately rather than by pairs.

Thus, there was a range of two to seven branches in the upper head hairs with an average of 4.0; the most frequent numbers of branches were three, four, and five. There was a range of one to six branches in the lower head hair with an average of 2.5; the most frequent numbers of branches were two and three.

In examining these specimens it was noticed that many hairs had a number of tiny "branches." As a rule these tiny "branches" were more numerous on hairs with fewer branches, (one- or two-branched hairs); for example, a one-branched lower head hair had about nine

or ten of these filaments all along the hair.

Most workers examining this species have mentioned little or no variation in these hairs but some workers have. McLintock, working in Canada, found considerable percentages of larvae with the upper head hairs four- to five-branched and the lower head hairs three-branched; and Natvig, studying Danish and Fennoscandian specimens, found the upper head hairs four- and five-branched and the lower ones three-branched.

In contrast to these studies on northern populations of *A. vexans*, most workers in the United States have found the upper head hairs three-branched and the lower

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² The use of the word "branch" is conventional; single hairs are 1-branched, double ones 2-branched, etc.

ones two-branched, and Marshall in England found the upper head hairs to be two- to four-branched and the lower ones one- to three-branched in fourth instar larvae.

In the Asiatic form, *A. v. nipponii* (Theob.), which replaces typical *A. vexans* in the Oriental region south of the Palearctic region, Lacasse and Yamaguti found the upper head hairs to be two- to five-branched and the lower head hairs to be one- to two-branched; their mosquitoes were from Japan and Korea. Bohart and Ingram, in specimens from Okinawa, report the upper head hairs to be two- to four-branched (usually three-branched) and the lower ones to be one- to two-branched (usually two-branched). These authors also report the upper head hairs of the Australian form to be one- to three-branched and the lower head hairs to be single. They resurrected the name *nocturnus* (*A. v. nocturnus* (Theob.)) for this form since it differed from the Oriental form in lacking the extensive white markings of the abdomen and also differed from the typical form in having the lower head hair single.

These results suggest the existence of a cline in the amount of branching of these two pairs of hairs, the upper head hairs of the northern forms from Canada and northern Europe being predominantly four- or five-branched and the lower head hairs being predominantly two- or three-branched, while in such intermediate areas as the United States and the south of England the upper head hairs are predominantly three- or four-

branched and the lower ones two-branched. Minnesota specimens are intermediate between these two types.

In more southerly areas such as the Oriental and Australasian regions the upper head hairs seem to be predominantly three- or four-branched or even two- or three-branched and the lower head hairs one- and two-branched. Since the Australasian form may represent merely the extreme of a cline, the wisdom of recognizing it nomenclatorially may be doubted.

A great deal of work is needed before any generalization can be made but it is entirely possible that the amount of branching of a hair may not be rigidly determined genetically. Environmental factors such as temperature may alter the expression of such a genetic trait. This would seem to have an important bearing on the theory of chaetotaxy of mosquito larvae.

References

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At the recent meetings of the American Mosquito Control Association at Atlantic City it was voted to hold the meetings for 1955 jointly with the California Mosquito Control Association in Los Angeles, January 24-27, 1955.