SURFACE LANDING PREFERENCES OF ADULT FEMALE *AEDES (STEGOMYIA) AEGYPTI* (LINNAEUS)[1] AT CLARK AB, R.P.

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INTRODUCTION. This paper is an extension of one written by Dowell (1964), again for the purpose of finding suitable landing surfaces among possible caging materials for *Aedes (Stegomyia) aegypti* (Linnaeus). The materials used in this experiment, all of which are being used for or in cages, were glass, polystyrene screen, serofoam, and olive drab nylon marquisette. Since there might be differences between *A. aegypti* taken in different parts of the world, specimens from Clark AB, R.P. were used for this study.

METHOD. The interior, vertical, wall surfaces of three cylindrical glass containers (8" x 22") were each divided into four equal parts. Three parts in each container were covered randomly with the materials to be tested and the fourth left blank to test the glass surface. The tops of the containers were covered with polyethylene film. Each top contained a hole, later closed off, for the introducing of the mosquitoes. The mosquitoes used in this experiment were reared from *A. aegypti* egg papers from an existing colony established from specimens taken at Clark AB, R.P. The adults were reared, using standard breeding procedures, (Christophers, 1960). When sufficient numbers were available, 50 were aspirated, after being given blood meals, from their holding cage into an experimental container. One container (a replicate) was filled and used each day, thus spreading the experiment over a 3-day period. During the experimental period the relative humidity was 98 percent, the temperature 82° F. and the lighting uniform. Each of the three containers was rotated about 180° to disturb the resting mosquitoes which were then given about 3 minutes to alight. The numbers of adults landing on each surface were counted and the procedure repeated for a total of thirty counts for each container. After the use of each container in the experiment, the mosquitoes were killed by placing the entire container in a freezer at 0° F.

TABLE 1.—Experimental design.

	Replicate			
Count	1	2	3	Totals
1	50	50	50	150
2	50	50	50	150
..	..	..	..	..
..	..	..	..	..
..	..	..	..	..
30	50	50	50	150
Totals	1500	1500	1500	4500

Table 1 gives the experimental design of the project showing the number of mosquitoes used in each replicate and the totals.

RESULTS. Table 2 gives the total number of mosquitoes landing per material per replicate and their totals.

TABLE 2.—Total number of landings per material.

	Replicate			
Treatments	1	2	3	Totals
Glass	137	100	86	323
Polystyrene screen	245	356	348	949
Serofoam	266	162	233	661
Nylon marquisette	777	780	748	2305
Totals	1425	1398	1415	4238

[1] The opinions expressed herein are those of the author only and do not necessarily represent those of the United States Air Force. This work was done while the author, a student at Wagner High School, Clark AB, R.P. was a "Science Cadet" with the 5th Epid. Flt.

Table 3 gives the results of an analysis of variance which shows that the difference in numbers of landings between materials was highly significant (F=9.91**). There was a marked preference by *A. aegypti* for the olive drab nylon marquisette surface and to a lesser degree for the polystyrene screen.

DISCUSSION. From the results of this experiment, olive drab nylon marquisette, rather than the other materials tested, appears to be markedly preferable as a resting surface to *A. aegypti*. This preference may be because the polystyrene screen and serofoam were light in color, thus attracting fewer mosquitoes than the dark, olive drab, nylon marquisette (Christophers, 1960). In this respect, the glass that was clear and thus had no particular color, had the least number of landings. However, glass was the only smooth surface material used in the experiment, so texture as well as color might be involved (Christophers, 1960). Ideally, the materials should be tested again, but this time coloring the glass, serofoam and screening the same as the marquisette. Nevertheless, it would appear that from the standpoint of resting area acceptability, olive drab, nylon marquisette is a satisfactory resting surface for *A. aegypti*.

TABLE 3.—Analysis of variance.

Source of variation	df	SS	MS	F
Replicates	2	93.2	96.6	..
Treatments	3	754905.0	251635.0	9.91
Error	6	15233.5	25389.17	..
Total	11	770231.7	..	..

SUMMARY AND CONCLUSION. The total numbers of adult female *A. aegypti* landing on different, equally-sized, randomly-arranged, landing materials in each of three, glass experimental containers (50 adults per container) were counted 30 times for each container. Between counts, each container was rotated about 180° and about 3 minutes allowed for the adults to come to rest. The difference in numbers of landings per material was highly significant. Olive drab, nylon marquisette is markedly more acceptable as a landing surface than any of the other materials tested. Polystyrene screen is superior to all other materials tested except the marquisette. Nylon marquisette, therefore, appears to be a satisfactory material for use in the construction of *A. aegypti* cages.

ACKNOWLEDGMENTS. I wish to express my appreciation to Major F. H. Dowell for his help in selecting this project and doing the statistical analysis. Also, I wish to thank Colonel M. Y. Kremers for making the Science Cadet program possible.

Literature Cited

CHRISTOPHERS, S. R. 1960. *Aedes aegypti,* the yellow fever mosquito. Cambridge: The University Press, 110, 505, 530, 531.

DOWELL, F. H. 1964. Surface landing preferences of adult female *Aedes (Stegomyia) aegypti* (Linnaeus), Mosquito News 25(3):286–287.