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VIABILITY OF PUERTO RICAN *Aedes Aegypti* EGGS AFTER LONG PERIODS OF STORAGE¹

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ABSTRACT. Some eggs of the Arecibo, Puerto Rico laboratory strain of *Aedes aegypti* hatched after 21 months and 27 days storage, most of the time at 50% relative humidity.

Many authors have studied the longevity of *Aedes aegypti* eggs and the consensus seems to be that the eggs stay alive for about one year (Christophers, 1960; Gerberg, 1970). Bacot (1918) recorded 15 months. My purpose is to report on studies of eggs stored for much longer periods.

MATERIALS AND METHODS. To obtain eggs I placed finger bowls containing water and lined with paper towel strips in cages of adults of the Arecibo, Puerto Rico laboratory strain. These adults had been under insecticidal pressure for 10 or more generations, and at the time they were resistant to malathion by a factor of seven or more (Fox, 1973). They fed on guinea pigs. When many eggs had accumulated on the strips, I wrapped them in paper towels, put them in plastic bags, and stored them for 5 months (January through June, 1972) in a room which was not air-condi-

tioned, the temperature varying from 72° F. to 86° F. (23° C. to 30° C.) and the relative humidity from 67% to 83%. But after this period I moved the bags to another building which was air-conditioned with the temperature from 68° F. to 78° F. (21° C. to 26° C.) and the relative humidity varying from 45% to 60%, but usually about 50%. There they stayed for almost 18 months (July, 1972 to November, 1973). There were 24 lots of eggs aged 7 to 22 months and each lot had 1,000 to 50,000 eggs. I hatched the eggs in tap water and reared the larvae on rabbit food pellets.

RESULTS. Of the 24 lots of eggs 10 did not hatch and 14 yielded some larvae. Table 1 gives the number of larvae obtained from eggs aged more than 15 months. Eleven larvae emerged and were reared to adults from 37,000 eggs more than 21 months old. These adults produced sufficient eggs to yield about 175 larvae, which became vigorous adults, and produced thousands of eggs.

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TABLE I. Viability of *Aedes aegypti* eggs of the Arecibo, Puerto Rico laboratory strain.

Lot	Number of eggs	Time as eggs		Yield of larvae
		Months	Days	
1	15,000	16	24	1
2	50,000	19	23	7
3	10,000	21	23	4
4	8,000	21	23	3
5	9,000	21	27	3
6	10,000	21	27	1

DISCUSSION. This study sets a new record for the extreme period of viability of stored eggs of *Aedes aegypti*: 21 months and 27 days, and also challenges the idea that the eggs will not survive for long periods, humidities at less than 70% (Clements, 1963). The fact that most of the eggs died during the period of about 50% relative humidity was only of temporary importance because the few eggs that did survive became adults capable of restoring the population.

Is longevity of the eggs related to the strain of *Aedes aegypti*? Since the literature often does not mention the strain, the subject needs further study. Concerned laboratories throughout the world ought to find out how long the eggs of their colonized strain stay alive. Such knowledge is particularly important in places where control of *Aedes aegypti* is in progress or contemplated because the ability of a population to produce long-lived eggs

may come about through insecticidal pressure. Perhaps resistant individuals have the ability while susceptible ones do not.

The possibility that the eggs may survive almost 2 years in dry habitats should be given more weight in the planning, budgeting and execution of the *Aedes aegypti* control program. It is unwise to publicize a place as free of *Aedes aegypti* simply because recent inspections of wet habitats reveal no larvae. A few eggs which may be present in the dry habitats may eventually generate a large population after heavy rains. The official position of public health authorities should be: *Aedes aegypti* has not been completely controlled unless inspections during rainy seasons over a period of more than 3 years have discovered no larvae.

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