

The seasonal cycle of the development of the morphs at Leithfield Lagoon followed the familiar pattern of mainly normal development in early and mid-summer and flightless development later. The proportion of flightless bugs in the population began increasing from about February 20, over two weeks earlier than occurred in the disturbed Kainga habitat. This earlier date for the change in recruitment of the flightless morph into the adult population is more likely to be the usual one for stable habitats in the area.

As described earlier for *A. assimilis* in the same habitat the population spread out along the southern end of the lagoon was divided into two parts as the water receded during summer. As with *A. assimilis* the bugs in the cut-off pond began to develop almost exclusively towards the normal morph.

The numbers of normal imagines in the collections in December and January are shown in Table III. The incidence of this morph in the population increased far more rapidly in the cut-off pond than in the lagoon, even though considerable differences between the two populations were already apparent at the start of summer. By chi-squared test the numbers of teneral and mature normal imagines compared with the rest of the imagines in the sample were not significantly different in the collections from the lagoon on December 23 and January 27 ( $\chi^2 = .044$ ,  $0.40 > P > 0.50$ ) but were different in the samples from the pond on these two dates ( $\chi^2 = 4.64$ ,  $P < 0.05$ ). The numbers of each group of imagines in the lagoon and pond samples were already significantly different on December 23 ( $\chi^2 = 11.91$ ,  $P < 0.001$ ) and more obviously so on January 27 ( $\chi^2 = 21.16$ ,  $P < 0.001$ ).

TABLE III.—The numbers of normal imagines in samples from the cut-off pond and lagoon at Leithfield.

	Cut-off Pond		Lagoon	
	Teneral and mature normal imagines (and as % of total imagines)	Total imagines in sample	Teneral and mature normal imagines (and as % of total imagines)	Total imagines in sample
December 17	—	—	47 (33%)	142
December 23	96 (67%)	143	64 (46%)	137
January 3	66 (65%)	102	39 (35%)	112
January 11	83 (74%)	111	35 (38%)	92
January 20	94 (82%)	115	73 (42%)	174
January 27	85 (80%)	107	33 (45%)	73

The changes in the development occurring within a generation in these two contrasting habitats by larvae from a common population demonstrate the effectiveness and advantages of a sensitive, environmentally determined polymorphism over a less flexible one more directly related to genetic factors and non-responsive within the life span of the animal.

At the end of summer the population at Kainga and the lagoon at Leithfield differed in the same way as found for *A. assimilis* in the same places: at Kainga over 90 percent of bugs were flightless, at Leithfield no more than 60 percent were flightless. Thus, in spite of the disturbance of clearing, Kainga was apparently a more favourable habitat for this species. Factors other than temperature, which was if anything lower in the lagoon, are thought responsible for this difference. At Leithfield the thick vegetation overlying the debris-covered bed seemed less suitable for corixids than the open silt areas in the Kainga channel but no examination of water or food quality was attempted.

#### COMPARISON OF THE LIFE CYCLES AND POLYMORPHISM OF *A. assimilis* AND *S. arguta*

The populations of the two species were in adjoining habitats at Kainga, but shared the same habitat and could be netted in the same sweeps of the net at