THE IMPORTANCE OF INVERSION OF AIR CURRENTS IN AERIAL SPRAYING

G. A. H. HELSON, *Department of Agriculture, Wellington.*

During the Pacific operations of World War II extensive areas were sprayed from the air for the control of malarial mosquitoes. At this time much intensive research was carried out on the best formulations, particle size, and dispensing equipment to use, as well as investigations into the optimum meteorological conditions for aerial spraying. At first only horizontal movements of the air mass in relation to the efficiency of air-spraying were considered. But it was soon obvious that vertical air movements must also be taken into account and the purpose of this brief note is to draw attention to this aspect of aerial spraying.

Under certain meteorological conditions, vertical air movements, particularly up currents, may be very rapid. Since the terminal velocities of many oil droplets sizes are very small, every advantage must be taken of favourable conditions which will tend to assist their downward movement. Such conditions were found to occur in the early morning just after the first light when the presence of a temperature inversion, with cold air settling near the ground, provided positive assistance to downward movement. Horizontal air movement under these conditions rarely exceeded 5 m.p.h.

It is suggested that the occurrence of inversion currents in aerial operations should be studied in any future experimental air spraying to determine their importance in New Zealand.