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## Further Studies on Selection for Resistance to *Salmonella aertrycke* in Mice

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FURTHER STUDIES ON SELECTION FOR RESISTANCE TO *SALMONELLA AERTRYCKE* IN MICE

H. O. HETZLER

It was demonstrated by Schott in 1932 that selection for resistance in mice to a standard dose of  $5 \times 10^4$  *S. aertrycke* bacteria was effective in decreasing the mortality from 82.3 per cent for the unselected foundation stock to 24.7 per cent in the sixth selected generation. Using the same material as the basis for further study, the complete results for the sixth generation gave a mortality of 22.5 per cent. Further decreases in mortality to 14.7 and 15.6 per cent were observed in the seventh and eighth generations respectively. Groups of mice belonging to the eighth generation when tested with a dose of  $2 \times 10^5$  organisms gave a mortality of 25.4 per cent. With the  $2 \times 10^5$  dose the mortalities decreased to 15.8 and 16.2 per cent in the tenth and eleventh generations respectively. Similar sets of mice belonging to the tenth and eleventh generations when tested with a dose of  $2 \times 10^6$  bacteria gave mortalities of 32.4 and 23.3 per cent respectively. With a dose of  $1 \times 10^7$  organisms the mortality rose to 40.3 per cent in the eleventh generation. A mortality of 47.2 per cent was observed in the twelfth generation with the dose  $1 \times 10^7$ .

The data reveal that for groups of mice, all of which were tested with the same dose, there was, as a whole, a progressive increase in resistance in successive generations. Comparison between percentage mortalities of groups of mice belonging to the same generation but each group having received a different dose indicates a distinct increase in mortality for the higher doses. The results clearly indicate the marked effectiveness of selection in increasing resistance to this bacterium. It is apparent that the increase in resistance in the later generations is lessened as genetic uniformity becomes established. Further, it is apparent, that there is a close relationship between the degree of infection and survival capacity.

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