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## The Hearing of the Vocal Vibrato

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ing and their uses are also given. The comparison of preliminary and end tests shows gains in comprehension up to 60 percentiles while rate of reading has been doubled. Further, an analysis of the fortnightly delinquency reports shows only half as many receive delinquencies on the last report as on the first and only 40% as many delinquencies. It is to be concluded, then, that remedial training in reading is feasible at the college level.

STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

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## THE HEARING OF THE VOCAL VIBRATO

HAROLD SEASHORE

Paralleling the extensive study of the artistic use of the vocal and instrumental vibrato is this study in the perception of the vocal vibrato. By using a synthetic tone-mixer, variations in pitch and intensity deviations, both as to rate and extent, were produced for the observers who responded by several methods — production, comparison and estimate. The data indicate that the observers, all of whom possess high musical discrimination for pitch and intensity, hear the deviations in pitch extent as about one-third the actual amount, that different rates of oscillation near the average of artistic usage, have little significant effect upon the perceived extent. The study is intensive rather than extensive. Some illusory effects are noted. The relation to musical *sonance* is discussed.

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## RELATIONSHIP OF CHANCE, OR CONSISTENCY, TO RATE AND EXTENT OF THE VIBRATO

MELVIN S. HATTWICK

The purpose of this study was to ascertain the role of chance, or consistency, in determining the rate and extent of the vibrato. Five most promising voice students of the University School of Music were secured for the study. Each was asked to sing two renditions of "The Last Rose of Summer" the second rendition following the first within an interval of five minutes. Recording of data in permanent form was secured by means of the strobophotographic camera, which simultaneously records duration and pitch changes,

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