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The Experimental Psychology of the Preschool Child

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It offers the means of investigating the following problems: Is there a fixed ratio of the frequencies of the two primaries at which two beating intertones are heard? Under what conditions are two beating intertones heard when two primary tones are sounding? What are the maximum and minimum beat frequencies at which two intertones are heard throughout the range of audibility?

STATE UNIVERSITY OF IOWA,
IOWA CITY.

SOME ASPECTS OF THE PROBLEM OF FATIGUE

CHRISTIAN A. RUCKMICK

In general fatigue is introspectively describable in terms of kinesthetic relaxation and low attentive ebb of ideas with an affective aspect of indifference, sometimes bordering on mild pleasantness. Galvanic responses taken by both the Hathaway apparatus and a highly sensitive D'Arsonval galvanometer show marked individual differences with a general tendency toward lower bodily resistance under fatigue. Two types of fatigue are distinguished: cognitive fatigue and bodily or physical fatigue. Under some experimental conditions both types may be combined. The galvanometric response varies with each type. Muscular fatigue, due probably to continued residual twitchings and tremblings, tends to show increased response, while cognitive fatigue usually shows diminished response. The technique and results are given in detail.

STATE UNIVERSITY OF IOWA,
IOWA CITY.

THE EXPERIMENTAL PSYCHOLOGY OF THE PRESCHOOL CHILD (*Illustrated*)

BETH L. WELLMAN

Since the establishment of the first preschool psychological laboratory in 1921, the Iowa Child Welfare Research Station has been conducting, as one part of the program in the mental development of young children, a series of experiments that have been repeated, extended and amplified from year to year. These experiments have been planned to afford detailed analyses of performance and the evaluation of psychological processes rather than test standards or the clinical diagnosis of a particular child.

During the six years of the laboratory's existence, approximately 21,000 individual records have been secured involving such abilities as the perception of form, size, shape and color, motor control, learning, intelligence, language, vocabulary, apperception, memory, classification of objects, concepts of number, time, weight, emotional development and speech development. This number does not include special experiments worked out for advanced degrees, some of which include several thousand records on a single series of experiments with its variations.

The results of the six years' experimentation are now being analyzed and evaluated for the determination of principles that may be coordinated and integrated into more general principles or laws of mental development and the experimental psychology of the preschool child.

STATE UNIVERSITY OF IOWA.

NEW DEVELOPMENTS IN THE TONOSCOPE: MEASUREMENTS ON CORRECT INTONATION IN SINGING

H. M. WILLIAMS

A new modification of the Seashore tonoscope has been developed, similar to the phonograph form already described,¹ using the phonograph motor as a source of power but having a new scale which covers a whole octave, in steps of tenths of a tone. The instrument may be read in terms of twentieths of a tone. These units were chosen because they are close to the sensory limits for interval discrimination and because such units are comparable from one octave to another. The rows of dots representing the notes of the chromatic scale are made larger than the intermediate dots for the purpose of ease of reading. The scale is doubled upon itself for compactness and so that the "framing effect"² described by Seashore may be utilized.

A neon lamp unit³ with a two stage vacuum tube amplified and a telephone transmitter have been substituted for the manometric flame and mercury arc light formerly in use. This lamp, together with an exponential horn attached to the transmitter has enormously increased the sensitivity of the instrument, so that the singer can now produce a tone at a considerable distance from the apparatus

¹ Seashore, C. E. *Psychology of Musical Talent*, p. 193, Silver, Burdette, 1919.

² Seashore, C. E. *The Tonoscope*, Psychol. Monog. XVII, No. 3, 1914 (Univ. of Iowa Studies in Psychology VI, p. 5).

³ This unit is manufactured commercially by C. F. Lorenz, E. Orange, New Jersey.