The Dependence of Tonal Attributes upon Phase. (*Amer. Journ. Psychol., October*, 1930.) *Gundlach, R., and Bentley, M.*

This is an account of a carefully planned and well-conducted investigation. The observers were first trained to report, in terms of pitch, volume, brightness and intensity, on tones of various frequencies. They were then presented binaurally with successive pairs of tonal stimuli which differed only in their phase-relations, and were instructed to compare the tones with respect to one or other attribute. A short history of the study of auditory localization is given, and Ogden's list of the attributes of sound as pitch, volume, brightness and intensity were provisionally accepted, but the authors became doubtful, from the results of their experiments, about this assumption. In the comparison of unlike tones in terms of a single attribute, pitch and intensity are most unequivocal; brightness and volume are more equivocal and less capable of independent variation. The difficulties of attributive comparison of tones are greatly increased when phase-difference and consequent shifts of localization are introduced. Brightness decreases as the phase-difference rises from zero and approaches one-half wave-length, and as the localization of the tone moves right or left from the median plane of the head. No regular or consistent change of pitch, intensity or volume was observed under the given experimental conditions. A. WOHLGEMUTH.

An Experimental Study of Visual and Auditory "Thickness." (*Amer. Journ. Psychol., October*, 1930.) *Moul, E. R.*

By "thickness" the author understands visual depth or auditory depth, magnitude or volume. The results are stated as follows: There is a pre-spatial attribute of thickness in vision and audition which is clear-cut in observation, and the descriptive terms of the observers for this "pre-perception" is practically identical for the two modalities. The "pre-perception" is simple, *i.e.*, not further analysable, and possesses a common character in vision and audition. A. WOHLGEMUTH.

The Range and Modifiability of Consonance in Certain Musical Intervals. (*Amer. Journ. Psychol., October*, 1930.) *Peterson, J. H., and Smith, F. W.*

Two groups each of 18 college students, one group trained in music and the other not so trained, were individually taken through experiments in which they were to indicate which of four musical intervals (fifth, fourth, major third and major sixth) was "slightly changed or unnatural." In every experiment one interval was either increased or decreased to the extent of 1 to 10 d.v. in a chance order. Occasionally as a "control" no interval was changed. Each of the 36 observers made 380 judgments. In the musically trained group the ranges of unnoticed change varied from $4{\cdot}70 \pm 0{\cdot}60$ to $5{\cdot}74 \pm 0{\cdot}76$ d.v., while for the untrained group they were all over 10 d.v. on all intervals. A. WOHLGEMUTH.

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