# AN ANATOMIC "PLACE" MODEL OF LOW-FREQUENCY SOUND LOCALIZATION

THOMAS N. PARKS, PHD

*and*

EDWIN W. RUBEL, PHD
BOTH BY INVITATION
CHARLOTTESVILLE, VIRGINIA

THE avian brain stem auditory nuclei magnocellularis (NM) and laminaris (NL) are considered homologous, respectively, to the anteroventral cochlear nucleus and medial superior olive of mammals. The results of physiologic mapping and experimental anatomic studies reveal that NM and NL have similar, regular tonotopic organizations, and that NM neurons project in a discrete topographic, tonotopic, and symmetric fashion to NL on both sides of the brain. This highly ordered projection contributes to the binaural response properties and tonotopic organization of NL neurons and suggests a mechanism for the differential transmission delay required by a "place" model of low-frequency sound localization. The resulting model predicts the anatomic locus of maximum neuronal response to stimuli emanating from a fixed source and the change in position of this locus of excitation as the azimuth of the stimulus is altered. The assumptions of the model and the supporting data will be discussed.

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From the Department of Otolaryngology and Maxillofacial Surgery, University of Virginia Medical School, Charlottesville, Va.

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