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New criteria for the division of the acoustic cortex into functional areas. JOHN C. LILLY AND RUTH CHERRY.* E. R. Johnson Fndn., Univ. of Pennsylvania, Philadelphia.

Rose and Woolsey (1949) divide the acoustic cortex of cats into acoustic I and II (AI and AII) and the posterior ectosylvian region (Ep). Part of their evidence was obtained from maps of the distribution of evoked potentials recorded with a single electrode moved over the cortex; they selected those regions showing the maximal amplitudes of the evoked potentials. We have recorded, with 25 electrodes simultaneously, click responses and spontaneous activity in the auditory cortex (*Proc. Am. Physiol. Soc.* Sept. 1951). We have tested this division into 3 areas by 2 additional criteria: 1) the averaged courses and the averaged speeds of movement of a small, single value of potential during the rising and the falling phase of the evoked response and during the passage of a spontaneous figure; and 2) the shapes and the velocities of many equipotential lines during the 2 types of activity. We conclude that AI and AII can be separated clearly from one another and from Ep during the rising phase of a single response at any given point but not so clearly during the falling phase. Further, Ep can be separated from AII by recording the changes in shape and in velocity of a spontaneous figure moving from Ep into AII. Thus, the origins, speeds, preferred directions of travel, and forms of the figures in responses and spontaneous activity are additional criteria which validate this functional division of this region of the cat's cortex. (Supported in part by U.S.P.H.S., Division of Research Grants.)