

in the somatic sensory

cortex of the cat.

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Abstract:

One of the most significant structural features of the neurons of the central nervous system is the potentially large synaptic surface they attain by the extension of their dendritic processes. The total surface area of the dendrites of a single neuron may be several times that of the cell body of cerebral neurons (Sholl, 1955; Schade & Baxter, 1960), spinal neurons (Aitken & Bridger, 1961) and cerebellar neurons (Fox & Barnard, 1957). These studies show that dendrites form 70-90 % of the neuronal surface of central neurons, so that the total number of dendritic synapses may be several times that of the perikaryonal synapses. Because of this, the geometrical patterns of dendrites would be expected to determine the spatial organization of the majority of the synapses of central neurons. It remains a question what may be the significance of this spatial organization. Geometrical characteristics of dendrites are here studied in the posterior sigmoid gyrus of the cat to find out if they can be analysed into definite pattern