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This Week's Citation Classic

Albe-Fessard D & Rougeul A. Activités d'origine somesthésique évoquées sur le cortex non-spécifique du chat anesthésié au chloralose: rôle du centre médian du thalamus. *Electroencephalogr. Clin. Neuro.* **10**:131-52, 1958.
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In chloralose-anaesthetized cats, stimulation of different body areas evokes bilateral positive convergent activities in cortical localised foci. Messages to these foci do not relay in the primary thalamic or cortical zones. The centre median (CM) of the thalamus exhibits similar convergent evoked responses and its stimulation produces responses in the cortical foci; the CM may be a relay to these foci. [The *Science Citation Index*® (*SCI*®) and the *Social Sciences Citation Index*® (*SSCI*®) indicate that this paper has been cited over 130 times since 1961.]

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"My first main interest, the organization of electric fish discharges, led me to use intracellular recordings just after this technique was developed by Eccles and his associates.[1] With the same technique, I later studied with P. Buser the activities evoked in the mammalian cortex cells. To pursue this work I needed to delimitate the primary areas in the cat anaesthetized with chloralose, the anaesthetic agent used in Europe at that time. I performed this mapping out with A. Rougeul. One day, by mistake, we searched for the evoked activity not on the cortex contralateral to the stimulated limb, but on the ipsilateral. We obtained large responses and realized that in some cortical foci similar responses appear whatever the side and the site of peripheral stimulation. We called these foci convergent because each of them was activated from extensive body areas (see also reference 2). Ablation techniques had shown us that the messages to these cortical foci do not need the integrity of primary thalamo-cortical projection. A thalamic convergent relay was thus to be found. We searched for it, using deep bipolar macroelectrodes mapping in medialis dorsalis, because this nucleus was thought in the 1950s to be the important associative thalamic nucleus. It was not there but underneath, in the CM, that we observed large convergent evoked activities resembling those in cortical foci. Convergences were also found at the unitary level using glass microelectrodes.

"I see two main reasons to explain why, in spite of this paper having been written in French, it was widely read and quoted. First, the evoked activities we described in the medial thalamus were not observed by workers using barbiturate anaesthesia.[3] In fact, under barbiturate anaesthesia, thalamic and cortical convergent responses are reduced or disappear. Thus, in spite of the fact that CM evoked responses were long before described by Magoun and McKinley,[4] our results were considered to be a chloralose artifact, and work was done by others[5] to verify our findings and by us to understand the difference in action of the anaesthetic agents.[6] In particular, from that time on, as a way of avoiding criticism, I used to frequently record in chronically awake animals. Second, the medial thalamic region we recorded from, and called CM in the cat, relying on the Jasper and Ajmone-Marsan atlas,[7] is made in fact of different nuclei, among them CM. However, the name CM taken from human anatomy was denied to this region by some anatomists and W. Mehler[8] in particular, who, on a cytoarchitectonic basis, called it CL. Our publication was the beginning of a long, friendly dispute with him and the anatomists who were searching for a relay of painful messages and had found a termination of spinothalamic pathways in the medial thalamus of man and monkeys. As a consequence, I became involved in research on pain pathways, work in which I am still active."

1. **Brock L G, Coombs J S & Eccles J C.** The recordings of potentials from motoneurones with an intracellular electrode. *J. Physiology* **117**:431-60, 1952.
2. **Amassian V E.** Studies on organization of a somesthetic association area, including a single unit analysis. *J. Neurophysiology* **17**:39-58, 1954.
3. **Mountcastle V & Henneman E.** Pattern of tactile representation in thalamus of cat. *J. Neurophysiology* **12**:85-100, 1949.
4. **Magoun H W Y & McKinley W A.** The termination of ascending trigeminal and spinal tracts in the thalamus of the cat. *Amer. J. Physiol.* **137**:409-16, 1942.
5. **Thompson R F, Johnson R H & Hoopes J J.** Organization of auditory, somatic sensory, and visual projection to association fields of cerebral cortex in the cat. *J. Neurophysiology* **26**:343-64, 1963.
6. **Albe-Fessard D.** Organization of somatic central projections. (Neff W D, ed.) *Contributions to sensory physiology*. New York: Academic Press, 1967. Vol. 2. p. 101-67.
7. **Jasper H H & Ajmone-Marsan C.** *A stereotaxic atlas of the diencephalon of the cat.* Ottawa, Canada: National Research Council, 1954. 15 p.
8. **Mehler W R.** Further notes on the center median nucleus of Luys. (Purpura D P & Yahr M D, eds.) *The thalamus*. New York: Columbia University Press, 1966. p. 109-22.