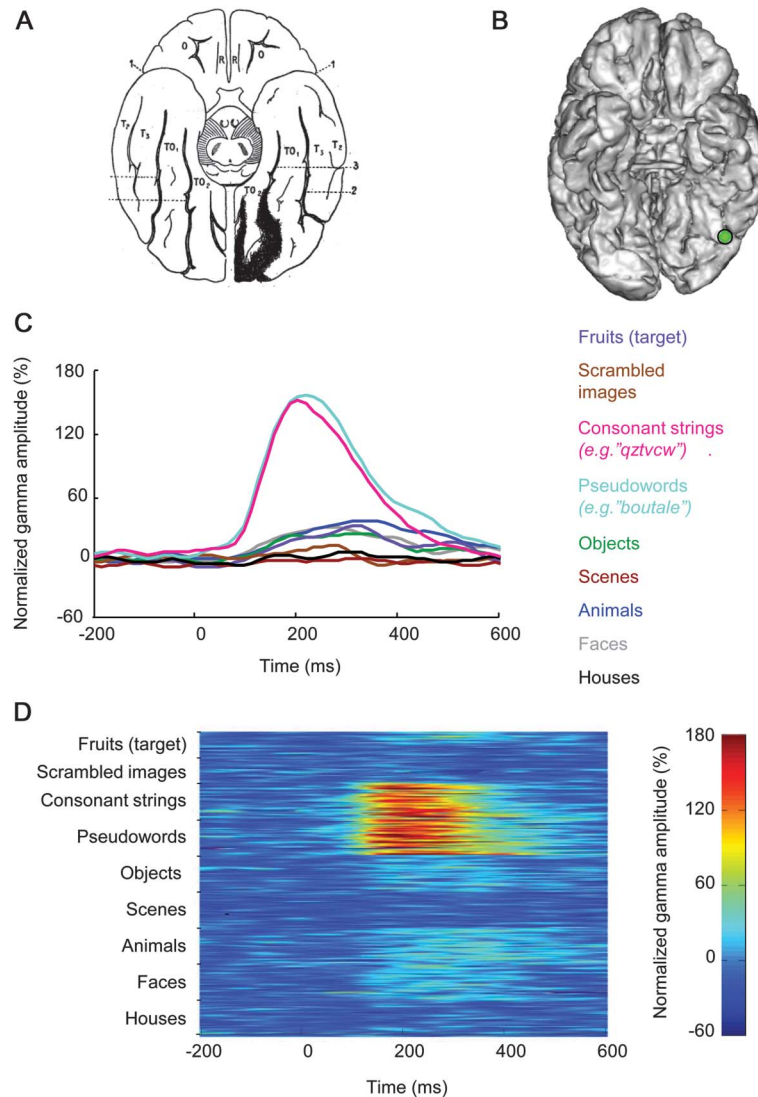


# Dejerine's reading area revisited with intracranial EEG

## Selective responses to letter strings

**Figure 1** Strong neural specialization for reading in the visual word form area: Recordings from depth electrodes



(A) Dejerine's drawing (1891)<sup>3</sup> of the lesion in a patient “who suddenly observed that he could not read a single word, while he could write and speak quite well.” (B) Localization of the recording in patient P.M. (Talairach:  $-44x, -57y, -10z$ ). (C) Mean broadband gamma response (50–150 Hz) to pronounceable pseudowords with a phonetic but no semantic dimension (e.g., “boutale”), unpronounceable consonant strings with no semantic or phonetic dimension (e.g., “qztvcw”), and other visual objects. We used pseudowords and consonant strings to minimize top-down lexical feedback that could arise for real words. (D) Trial-to-trial gamma power responses. Figure e-2 shows the T1 scan of one single patient's brain.

Supplemental data at [www.neurology.org](http://www.neurology.org)

The visual word form area in the ventral occipitotemporal cortex develops with acquisition of reading skills. It is debated whether this region is specialized for reading<sup>1</sup> or is rather a general-purpose area associating visual form (words, objects) with meaning. An outline of this debate can be found in appendix e-1 on the *Neurology*<sup>®</sup> Web site at [www.neurology.org](http://www.neurology.org). We recorded intracranial EEG in 2 patients with epilepsy (figures 1, e-1, and e-2)

and found neural populations responding almost exclusively to letter strings, over 500% of all other responses. With the exception of the fusiform face area, such specific responses have never been described before in the human visual system.<sup>2</sup> Strong specialization in the human brain can thus be achieved also through cultural learning.

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