

## Lluís Barraquer Bordas (1923-2010): the pioneer of Catalan neuropsychology

A. García-Molina<sup>1,2,3</sup>, T. Roig-Rovira<sup>1,2,3</sup>

<sup>1</sup>Institut Guttmann, Institut Universitari de Neurorehabilitació Guttmann, Badalona, Spain.

<sup>2</sup>Universitat Autònoma de Barcelona, Bellaterra, Spain.

<sup>3</sup>Fundació Institut d'Investigació en Ciències de la Salut Germans Trias i Pujol, Badalona, Spain.

### ABSTRACT

Lluís Barraquer Bordas was a remarkable figure in Spanish contemporary neurology. However, his valuable contributions to the development of neuropsychology have been largely overlooked. He was the author of the first two Spanish-language books focusing exclusively on the higher cerebral functions: *Afàsias, apraxias, agnosias*, published in the mid-1970s, and *Neuropsicologia* in 1983. On 10 January 1980, Barraquer Bordas founded the Catalan Society of Neuropsychology, the oldest active neuropsychology society in Spain. Since its inception, this society has played and continues to play a key role in promoting and bringing together the interests of the different professionals contributing to the study of the brain and behaviour. In 2009, the government of Catalonia awarded Barraquer Bordas with one of its highest distinctions, the *Creu de Sant Jordi*, for his pioneer achievements in neuropsychology.

### KEYWORDS

Neuropsychology, neurology, brain, Catalonia, 20th-century history, Barraquer Bordas

Lluís Barraquer Bordas was born in Barcelona on 27 April 1923. His family had already left its mark on medicine: his grandfather, Luis Barraquer Roviralta (1855-1928),<sup>1</sup> and his father, Luis Barraquer Ferré (1887-1959),<sup>2</sup> were leading figures in the emergence and development of a Spanish school of neurology. From a very young age, Barraquer Bordas exhibited a keen interest in this medical specialty. By May 1938, he was already attending rounds in the neurology and traumatology departments at Hospital de la Santa Creu i Sant Pau, in Barcelona. He began studying medicine in 1940 and was admitted one year later to the Faculty of Medicine at Universitat Autònoma de Barcelona. In 1947, after completing his medical degree, he was hired by Hospital de la Santa Creu i Sant Pau, where he worked in the neurology department then directed by his father. Between 1949 and 1950, he was employed by Barcelona's Instituto Neurológico Municipal as a junior doctor, alongside Dr Belarmino Rodríguez Arias and Dr Cristóbal Lamote de Grignon. He would later become head of the neurology department at Hospital Clínico in Barcelona (1950-1967) and Hospital Sant Pau i Santa Tecla, in Tarragona (1951-1960). In 1972, he was appointed director

of the neurology department at Hospital de la Santa Creu i Sant Pau. A very active member of the Spanish Society of Neurology (SEN) for many years, Barraquer Bordas served as secretary at the SEN's inaugural meeting (16 December 1949). He was also a member of the Board of Directors (1955-1959) prior to becoming the SEN's vice-president (1966-1967) and subsequently its president (1969-1973). Barraquer Bordas was named honorary president of the SEN on 14 December 1974, by recommendation of Dr Carlos Oliveras de la Riva and the Board of Directors. Between 1968 and 1973, Barraquer Bordas chaired the Association of the Neurological Sciences; this association had evolved from the Barcelona Society of Psychiatry and Neurology, the first neurological society in either Catalonia or Spain, founded in 1911 by Artur Galcerán i Granés. Barraquer Bordas died on 5 April 2010 at his country house in Sant Climent de Llobregat, on the outskirts of Barcelona (Figure 1).<sup>3</sup>

While Barraquer Bordas laid the groundwork for contemporary Spanish neurology, little is known about his contributions to developing neuropsychology in

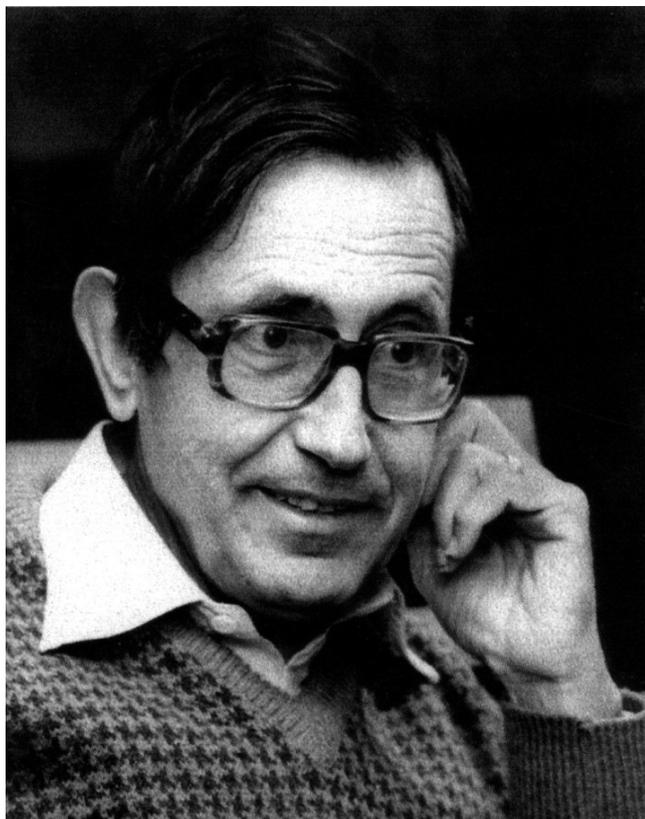


Figure 1. Lluís Barraquer Bordas (1923-2010). Historical archive of the Spanish Society of Neurology

Catalonia, a field to which he devoted “fervent effort and intense hours of study”.<sup>4</sup>

He was barely fifteen when his enthusiasm for neuropsychology awakened. It was at this tender age that he read *Existe-t-il chez l'homme des centres préformés ou innés du langage* by one of his father's favourite authors, Pierre Marie (1853-1940). This book sparked his interest in language, a topic that would fascinate him for the rest of his life. In fact, one of his first publications related to higher brain functions focuses on aphasia. Published in 1963, it describes two cases of crossed aphasia in right-handed patients.<sup>5</sup> Curiously enough, one of his last articles, published in *Annals de Medicina*, described an episode of transient aphasia experienced by Barraquer himself after an accidental fall in October 2003.<sup>6</sup>

Despite his interest in language and in speech disorders, he chose constructional apraxia as the main topic of his doctoral thesis, which was directed by renowned psychiatrist Julián de Ajuriaguerra (1911-1993). According to Ajuriaguerra's theory of retrogenesis, regression in dementia

follows the course of normal development in reverse order, and impaired constructional praxis is typical in early stages.<sup>7</sup> Barraquer's doctoral thesis confirmed this hypothesis and underlined the importance of constructional apraxia, both as a focal symptom and as an expression of the functional regression process which will continue until the stage in which the grasp reflex reappears. In Barraquer's words, constructional apraxia is a “valuable and precise sign of the regression seen in the patient's functional ability, which includes dismantling of the projective and Euclidean frameworks, whereas topological space remains preserved for some time”.<sup>8</sup> On 6 December 1966, he completed his doctorate in medicine at Universidad de Navarra. Some months later, Rigo, Richard, Tissot, and Barraquer published a study in *Revue Neurologique*, addressing disintegration of the ‘constructional’ framework.<sup>9</sup>

Of his many publications in the field of neuropsychology, his most important books were *Afasiás, apraxias, agnosias* (1974)<sup>10</sup> and *Neuropsicología* (1983).<sup>11</sup> The first of these books displays a semiological and syndromic approach characteristic of the French school of neuropsychology, although Barraquer's perspective was more eclectic and he incorporated theoretical knowledge from related fields, such as linguistics. *Neuropsicología*, co-edited with his student Jordi Peña Casanova, was the first Spanish-language treatise on higher brain functions and their relationships with different brain structures. Its prologue, written by the eminent French neurologist François Lhermitte (1921-1998), highlights the encyclopaedic scope of the book and the ability of its authors to neatly summarise such a broad topic in only 600 pages, drawing from 650 bibliographic references. In 1995, Barraquer published yet another distinctive book: *El sistema nervioso como un todo. La persona y su enfermedad* [The nervous system as a whole: individuals and their illnesses].<sup>12</sup> Rich in theoretical background, this book presents the advances in different fields of applied neurosciences from a philosophical perspective not usually employed in this area of science.

On 10 January 1980, a group of professionals united by their interest in neuropsychology, and led by Barraquer, founded the Catalan Society of Neuropsychology (SCNPS), which is the oldest active neuropsychological society in Spain. Its first Board of Directors consisted of L. Barraquer Bordas (president); J.M. Blecua (vice-president); J. Peña Casanova (secretary); J.M. Vendrell (vice-secretary); P. Vendrell (treasurer); and C. Ballús, J. Olivella, M. Sánchez, J. M. Costa, and J. Jubert as members of the Board.<sup>13</sup> Barraquer was president from 1980 to 1994, and



**Figure 2.** Inaugural meeting of the Catalan Society of Neuropsychology (SCNPS); Dr Barraquer Bordas is on the right. SCNPS

that position was subsequently held by J. Peña Casanova (1994-1996), J. Olivella (1996-2001), R. Gené (2001-2008) and M. Garolera (2008-present).<sup>14,15</sup> Article V of the SCNPS statutes lists the society's objectives as follows: *a)* to study higher brain functions and their connections with brain processes; *b)* to develop clinical and therapeutic applications for neuropsychology; *c)* to promote professional interaction and collaboration; and *d)* to disseminate specific neuropsychological findings.<sup>16</sup> According to Barraquer, neuropsychology must be regarded as a highly specialised and multifaceted discipline in order to achieve these goals. In his inaugural speech at the first meeting of the SCNPS, celebrated in the assembly hall at Hospital de la Santa Creu i Sant Pau on 30 April 1981, Barraquer stated that neuropsychology would require a climate of multidisciplinary collaboration in order to take shape and develop (Figure 2).<sup>17</sup> As a result, a wide variety of professionals from different specialties (neurology, psychiatry, psychology, speech therapy, etc.) became members of CSNPS with the shared purpose of studying behaviour from a biological perspective while regarding the brain as the source of that behaviour.

Lluís Barraquer Bordas also promoted the development and consolidation of neuropsychology in Catalonia by creating a school –the ‘Barcelona school’ according to some authors– which united classic semiology with a multidisciplinary approach.<sup>18</sup> In 2009, the government of Catalonia awarded Barraquer the *Creu de Sant Jordi* for his promotion of neuropsychology, and in November

2010, the SCNPS created the Barraquer Bordas prize, which honours the best research projects on neuropsychology in Catalonia.

## References

1. Zarranz JJ. Luis Barraquer Roviralta. *Neurosci Hist.* 2014;2:34-7.
2. Barraquer Bordas L, Peres Serra J, Grau Veciana JM, Martí Vilalta JL. La vida y la obra científica de Luis Barraquer Ferré. *Anales de Medicina y Cirugía.* 1972;52:301-24.
3. Barraquer Bordas L. *Memòries i reflexions d'un neuròleg.* Barcelona: Publicacions de l'Abadia de Montserrat; 2008.
4. Barraquer Bordas L. *Mig segle de neurologia clínica viscuda. Discurs de recepció de l'Acadèmic electe Lluís Barraquer Bordas. Discurs de benvinguda de l'Acadèmic numerari Prof. Rodríguez Arias.* Barcelona: Reial Acadèmia de Medicina de Barcelona; 1988.
5. Barraquer Bordas C, Mendilaharsu C, Peres Serra J, Acevedo de Mendilaharsu S, Grau-Veciana JM. Estudio de dos casos de afasia cruzada en pacientes manidextros. *Acta Neurol Latinoam.* 1963;9:140-8.
6. Barraquer Bordas L. Els possibles efectes d'un tou llisquent de pinassa. *Annals de Medicina.* 2004;87:143-4.
7. Aguirre JM, Guimón Ugartechea J. *Vida y obra de Julián de Ajuriaguerra.* Madrid: Editorial Libro del Año; 1992.
8. Barraquer Bordas L. *La apraxia constructiva. Su valor como síntoma focal y como expresión de la regresión operatoria hasta el nivel de la conducta involutiva de asimiento. Estudio de una serie de 100 casos [doctoral thesis].* Pamplona: Universidad de Navarra; 1966.
9. Barraquer Bordas L, Rego A, Richard J, Tissot R. La signification du syndrome d'adhérence dans l'apraxie constructive. *Rev Neurol (Paris).* 1967;117:575-6.
10. Barraquer Bordas L. *Afasia, apraxias, agnosias.* Barcelona: Toray; 1974.
11. Peña Casanova J, Barraquer Bordas L. *Neuropsicología.* Barcelona: Toray; 1983.
12. Barraquer Bordas L. *El sistema nervioso como un todo. La persona y su enfermedad.* Barcelona: Paidós; 1995.
13. *Acta Fundacional de la Societat Catalana de Neuropsicologia.* 10 de enero de 1980.
14. Barraquer Bordas L. La “Societat Catalana de Neuropsicologia”: pasado, presente y futuro. *Rev Neurol.* 1999;29:1268-70.
15. Junqué C, Vendrell P. *Història de la neuropsicologia catalana.* En: Arboix A, Gironell A, de Fàbregues O, Font MA, Izquierdo J, Krupinski J, et al., editores. *Història de la neurologia catalana.* Barcelona: Societat Catalana de Neurologia; 2011. P. 211-26.
16. *Estatuts de la Societat Catalana de Neuropsicologia.* 21 de mayo de 1989.
17. Barraquer Bordas L. Presentación de la neuropsicología. *Rev Dep Psiquiatr Fac Med Barc.* 1982;9:45-52.
18. Nespoulous JL. Prólogo. In: Diéguez Vide F, Peña Casanova J. *Cerebro y lenguaje. Sintomatología neurolingüística.* Madrid: Editorial Médica Panamericana; 2012. p V-VII.