

growing upward toward the head, and the right leg bending toward the left leg, the foote thereof growing into the buttocke of the sayd left leg'. This particular case was seen in association with other congenital anomalies, such as genu recurvatum congenitum, cleft lip, and microcephaly, and is thought to be the earliest representation of Larsen's syndrome, one of the types of arthrogryposis.

It is therefore likely that arthrogryposis occurred in Spanish society in the 17th century, at the time of Ribera, and although the final diagnosis for *The Clubfoot* is speculative, arthrogryposis is certainly one worth considering.

Competing interests None.

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REFERENCES

- 1 Freud S. *Infantile Cerebral Paralysis*, Russin Lester A (Transl). Florida: University of Miami Press, 1968
- 2 Williams AN. A message for the future in a plea from the past. *Arch Dis Child* 2001;**85**:503
- 3 Chakrabarti S. Response: a message for the future in a plea from the past. *Arch Dis Child Online* 2002 [http://adc.bmjournals.com/cgi/eletters/85/6/503238]
- 4 Tachdjian MO, Herring JA, eds. *Pediatric Orthopaedics*, 3rd edn. Philadelphia: W B Saunders, 2001
- 5 Sung SS, Brassington AM, Grannatt K, et al. Mutations in genes encoding fast-twitch contractile proteins cause distal arthrogryposis syndromes. *Am J Hum Genet* 2003;**72**:681–90
- 6 Gordon EC. Arthrogryposis multiplex congenita, AD 1156. *Dev Med Child Neurol* 1996;**38**:80–3
- 7 Anderson T. Earliest evidence for arthrogryposis multiplex congenita or Larsen syndrome? *Am J Med Genet* 1997;**71**:127–9

Nerve endings: the discovery of the synapse

Richard Rapport

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Santiago Ramon y Cahal (1852–1934) and Camillo Golgi (1843–1926) met on only one occasion, when they jointly received the Nobel Prize in Medicine in 1906, the first histologists to do so. Golgi's major contribution to microscopic neuroanatomy was the discovery of silver staining of neurons, which enabled these cells and their processes to be seen clearly and to be traced. He also described the intracellular organelle that bears his name.

Cajal used Golgi's method and refined it further, making detailed studies of the cellular structure of the cerebellum and spinal cord. They were both limited by the resolution of the light microscope and initially by poor optics. Their interpretation of what they saw differed fundamentally. Golgi saw no reason to dispute the long held view that the cells of the brain formed a reticulum, with all cells in direct contact with each other—a view that he continued to espouse long after the rest of the scientific world had abandoned it; and he vigorously defended it at the Nobel Prize ceremony. In the 1880s Cajal was the first to realize that neurons were discrete entities, conducting their impulses in one direction only down their axon and receiving information through dendrites on the cell body; and, most notably, that there was a gap between one cell and the next. The nature of this gap and how impulses were transmitted across it was unknown at the time. It was Sherrington who introduced the term synapse in 1897.

It is possible to trace Cajal's life from childhood in a remote village on the southern slopes of the Pyrenees, the son of a village doctor, to the Nobel Prize and a Chair at the University of Madrid, because he wrote an extensive biography *Recollections of my Life*. Rapport makes extensive use of this archive to give detail and background to Cajal's progress to fame and international recognition, with over 200 quotes (all referenced in an appendix). Such personal details are not available for Golgi, whose biographical details come from the public record of his appointments and analysis of his publications.

This book is about Cajal's life and achievements, and the domestic and political environment of the time in Spain. Most notable was the scientific isolation in which he worked: but perhaps that insulated him from the prevailing views in the rest of Europe and enabled him to look at the same appearances as everybody else—but with an unbiased eye. He was able to record his findings with immaculate drawings, a skill he developed at school when he was more interested in art than science.

There is a glossary of scientific and medical terms, a bibliography and an excellent index. A problem the author has tried to address is writing for both the non-medical and medical reader. The frequent explanations of medical phraseology and the use of lay terminology is a minor irritation to the medical reader; and the non-medical reader might have some difficulty in remembering these explanations from one section to another. This book will appeal to all those interested in how the understanding of the microstructure of the brain developed in the last decades of the 19th and the early 20th centuries.

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