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Review

The pioneers of clinical neurology in South America

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Abstract

The field of neurology in South America (SA) began to emerge towards the end of the nineteenth century, following the origin of the specialty in Europe. There was a consistent and long-standing admiration for European training, which led to the birth of the discipline in South America. The first steps took place almost simultaneously with European countries in Argentina, Brazil, Uruguay, Chile and Peru. This paper will unearth information on the pioneers of clinical neurology in SA. Taken together, these sources reveal several important milestones in the long history of the field. The department of Neurology at the *Hospital San Roque de Buenos Aires* was created in 1885 and headed by José María Ramos Mejía, who then took over as Professor of Neurology at the University of Buenos Aires School of Medicine in 1887. The first institute of neurology in Latin America, the *Instituto Neurológico de Montevideo*, was founded in 1926 under Américo Ricaldoni's direction. Seventeen years later, the *Archivos de Neuropsiquiatría* from San Pablo was created, and is still in existence. Up until the present, South America has made dozens of important research contributions, the most important in the diagnosis and treatment of regional endemic diseases.

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Keywords: History; Neurology; Founders; South America; Latin America

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1. Introduction

Latin America (LA) is generally considered to be a part of the so-called ‘Third World’. This “developing” or “underdeveloped” group of countries which nowadays encompasses two-thirds of the world population, produces, according to citation indexes no more than 3% of the scientific knowledge generated in the world each year [1]. At the end of the nineteenth century, however, some national economies underwent important cultural and scientist developments. At that time, the positivist movement spread all over Latin America and helped to create a favorable to science. This well-known “gold period” of science was named “the generation of eighty”. The first neurologists in Latin America emerged in that period, closely following the origin of the specialty in Europe and its official baptism with Charcot at the Salpêtrière Hospital in Paris. The first steps took place almost concurrently in the southern countries of South America: Argentina, Brazil, Uruguay, Chile and Peru. In the other LA countries, its development began later in the 20th century [2].

2. Objective

This paper aims to review the beginning of neurology in South America, the founding of departments of neurology, the

birth of scientific societies and the firsts specialized journals. We shall not list and describe all neurologists or SA countries extensively; instead, the most important pioneers of the specialty and their contributions will be highlighted.

3. Material

It is difficult to follow this puzzle of country-specific, scattered information, which has hardly been explored in international publications or even mentioned in local journals with bibliographic references. In fact, many unpublished records have been lost, and as such, we have limited or incomplete information on the development of neurology in certain countries. A search in Index Medicus and Embase was executed using the key search terms “History, Neurology, Latin American, South America and the names of each country” to collect supplementary information, but no related articles were found. In LILACS (Latin American Literature) and Latindex (Latin American Index) databases, the key search terms, “Historia, Neurología, América Latina, and Sudamérica” and the names of each country were reviewed. The World Federation of Neurology (2006) representatives of each country were contacted by e-mail in hopes of soliciting relevant information, as were Society’s chairmen, local journal

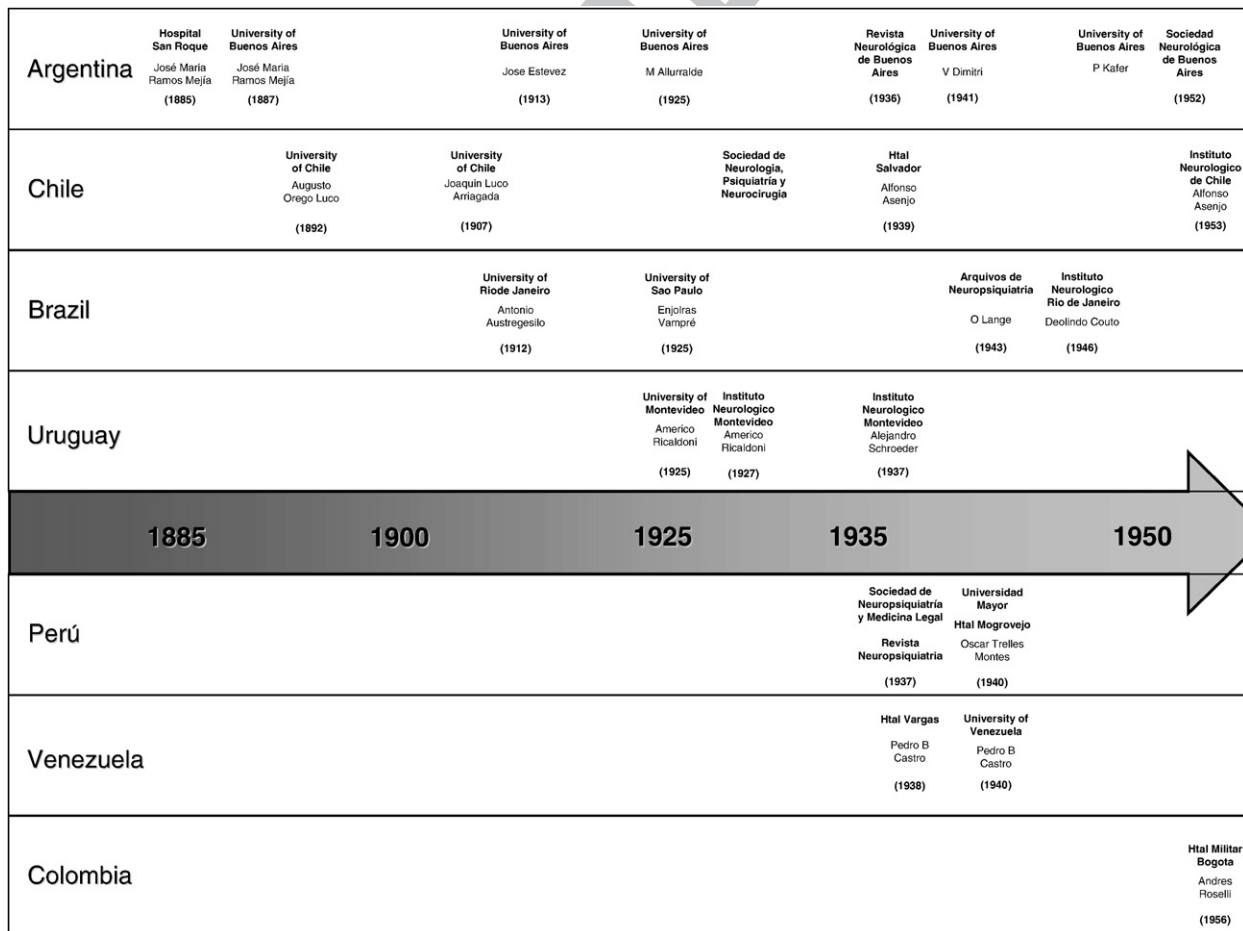


Fig. 1. Chronology of the pioneers of clinical neurology in SA.

79 editors, and neurologists in the American Neurology Academy
80 directory. Also, internet pages of SA countries Societies,
81 Journals, Hospitals, and Neurology Institutes were reviewed.

82 4. Results

83 A closer look at the key figures and important milestones in
84 the foundational stage of Clinical Neurology in South America
85 will describe in the following paragraphs (see Fig. 1).

86 4.1. Neurology in SA at the end of the nineteenth century

87 The foundations of clinical neurology in South America
88 took root in 1885, with the Hospital San Roque de Buenos
89 Aires' first nervous diseases service. Its first director was
90 José María Ramos Mejía, a writer, sociologist, scientist, and
91 outstanding public presence. In 1887, only five years after
92 Charcot was awarded the chief of neurology position in
93 Paris, Ramos Mejía became the first professor of neurology
94 in South America, at the University of Buenos Aires. In his
95 double capacity as chief and professor, he chartered
96 Argentina's path in the discipline. His most well-known
97 articles, *La neurosis en los hombres públicos de la historia*
98 *argentina* (Neurosis in Public Men in the History of
99 Argentina) and *Estudios clínicos sobre las enfermedades*
100 *nerviosas y mentales* (Clinical Studies on Mental and
101 Nervous Diseases), are more sociological and psychiatric
102 than neurological [3,4].

103 In 1892, Augusto Orrego Luco of Chile, trained in France
104 by Charcot, took over as Professor of Nervous Diseases at
105 the University of Chile. He was the most prominent figure in
106 Chilean neurology during the second half of the nineteenth
107 century, and was nicknamed "Charcot of America" [5].

108 In the other countries of LA there was not a true
109 foundational stage in this period; there were doctors with
110 neurological training from Europe, but they were not true
111 neurologists as their understanding of the discipline lay
112 within the framework of internal medicine.

113 4.2. Neurology in SA between 1900 and 1924

114 Throughout the world, the first quarter of the 20th century
115 saw dramatic innovation in every aspect of neurology. The basic
116 sciences framework for neurology was set by fundamental
117 advances in neurophysiology, led by Sir Charles Sherrington,
118 and the histology and pathology of the nervous system was
119 solidified by Santiago Ramon y Cajal and Camilo Golgi. In
120 1909, the New York Neurological Institute was created. The
121 world leaders of neurology at that time were: Charles Mills,
122 William Spiller and James Jackson Putnam in the US; William
123 Gowers, Hughlings Jackson, Henry Head, Gordon Holmes in
124 England; Dejerine, Pierre Marie and JF Babinski in France; and
125 William Erb and H Oppenheim in Germany [6].

126 In Buenos Aires, three assistants collaborated with Ramos
127 Mejía to develop clinical neurology: Christofredo Jakob, a
128 German neuropathologist who trained with Strumpell; José A.

Estévez, well-known known for his clinical approach; and José
129 Ingenieros, renowned in the science and political world for his
130 sociological contributions [3]. Jakob, the founder of neuro-
131 pathology in Argentina, was recognized for his systematization
132 of brain slicing and for his efforts to study the myelin sheath. He
133 published the "Folia Neurobiológica Argentina," a complete
134 compilation of his neuropathological works [7]. 135

In Chile in 1907, Orrego Luco retired and the department of
136 neurology he once led was taken over by his disciple, Joaquín
137 Luco Arriagada (trained by Babinski). The school decided to
138 divide the department, and psychiatry and neurology were
139 coordinated by his assistants, Oscar Fontecilla and Hugo Lea
140 Plaza, respectively [8]. 141

In Brazil, the discipline emerged in 1912 when the Uni-
142 versity of Rio de Janeiro School of Medicine created its first
143 department of neurology, and appointed its first full pro-
144 fessor, Antônio Austregésilo Rodrigues Lima, a politician,
145 writer, and skilled physician, now considered the father of
146 Brazilian neurology. He was the first to study movement
147 disorders in Brazil, publishing several works on this subject,
148 primarily in *Revue Neurologique* and *L'Encéphale* [9]. 149

150 4.3. Neurology in SA between 1925 and 1934

This period is characterized by discovery and innovation
151 in neurology and neurosciences worldwide. The myelogram,
152 angiogram, electroencephalogram and electromyogram were
153 introduced in a span of less than ten years. In 1928 the first
154 full-time teaching and education unit of medical neurology
155 was developed in the United States at Boston City Hospital.
156 The thirties were marked by severe global economic hard-
157 ship and progressive dictatorial centralization of power in
158 Italy and Germany [6]. 159

In 1925, Luco Arriagada of Chile created the Hospital del
160 Salvador Neurology Service and in 1931, he began to serve as
161 clinical chief at the Manicomio Nacional (Neuropsychiatric
162 Hospital). In 1932 the Sociedad de Neurología, Psiquiatría y
163 Neurocirugía de Chile was founded. When Arriagada retired,
164 Lea Plaza was made Chair of Neurology at the University of
165 Chile, and Jorge Oyarzun became Chief of Neurology at the
166 Hospital del Salvador [8]. 167

In Brazil, the São Paulo School of Neurology was founded
168 in 1925, and Enjolras Vampré was appointed to take over the
169 Department of Psychiatry and Neurology. Vampré, trained at
170 the Salpêtrière, introduced the fundamentals of French neu-
171 rology to São Paulo and is considered the founder of the São
172 Paulo school of neurology [10,11]. In 1935, the department was
173 divided into psychiatry and neurology. Successive generations
174 of neurologists at the São Paulo school were disciples of
175 Vampré, including Adherbal Tolosa, Paulino Watt Longo,
176 Oswaldo Lange, and Carlos Gama [11]. 177

In Buenos Aires, Mariano Alurralde succeeded Estévez. 178
179 Alurralde published studies on neurosyphilis. In this period,
180 the research focus was on anatomy and histopathology [4]. 180

In 1925, Uruguay took an important step with the creation
181 of the Department of Neurological Diseases, approved in the
182

183 School of Medicine of Montevideo, with Américo Ricaldoni
184 as its chairman. In 1927, the Uruguayan government created
185 the Instituto de Neurología de Montevideo, and Ricaldoni
186 was designated director and Professor of Neurological
187 Disease. This was the first neurological institute in Latin
188 America — preceding the Montreal Neurological Institute
189 by several years. Ricaldoni published articles in journals
190 from Uruguay and Argentina, wrote about Laundry's palsy
191 in Archives Générales de Médecine de Paris and bilateral
192 cranial nerve VI and VII palsies in the Revue Neurologique.
193 The creation and subsequent growth of his institute was
194 brought to an end by his death in 1928 [12].

195 4.4. Neurology in SA between 1935 and 1950

196 Throughout the World War II period there were neurolo-
197 gical publications related to war injuries, aviation medicine
198 and clinical neurophysiology.

199 Peru's foundation stage began in 1935 with the return from
200 Paris of Oscar Trelles Montes, trained by Jean Lhermitte. He
201 published 35 scientific papers with him. He is considered the
202 "father of neurology of Peru" [13,14]. In 1937, Trelles and
203 Honorio Delgado (renowned psychiatrist) co-founded the
204 Revista de Neuropsiquiatría, and one year later created the
205 Sociedad de Neuropsiquiatría y Medicina Legal of Peru. In
206 1940, Trelles was conferred professorship in neuropathology
207 at the Universidad Nacional Mayor de San Marcos School of
208 Medicine [13]. By this time, he was also tending to the Refugio
209 de Incurables of Lima (later renamed Hospital Santo Toribio de
210 Mogrovejo) [13,15]. Almost every neurologist in Peru had
211 studied at this hospital in some capacity under Trelles' 30-year
212 directorship.

213 The first journal of neurology was the Revista Neurológica
214 de Buenos Aires, created by Dimitri in 1936, which featured
215 reviews, neuropathological descriptions, clinical case studies,
216 notices and summaries of international congress and lectures.
217 This first Spanish publication in the discipline was very im-
218 portant because few physicians had a good command of non-
219 Spanish languages and even fewer had access to international
220 journals [4].

221 At the beginning of 1937, after a decade of negligible
222 neurological activity in Uruguay, the specialty was finally
223 advanced when Alejandro Schroeder, trained in Germany, was
224 appointed professor and director of the Institute of Neurology
225 in Montevideo. Since Schroeder took over, the institute,
226 renamed Instituto de Neurología Prof. Dr. Américo Ricaldoni,
227 has been ranked amongst the top in South America. Two years
228 later, in 1939, the Sociedad de Neurología y Neurocirugía
229 de Montevideo set off with Schroeder as its first president [12].

230 In Venezuela, the discipline began upon Pedro B. Castro's
231 return from Paris in 1936, where he had been trained by
232 Professor Guillain at the Hôpital de la Salpêtrière. In 1938,
233 Castro took over as a neurology consultant at Hospital Vargas,
234 where he would remain until 1959. The Archivos Venezolanos
235 de Otorrinolaringología, Oftalmología y Neurología journal
236 circulated in the thirties and forties. In 1940, the Universidad

Central de Venezuela created its first Department of Neurology
and Psychiatry naming Castro its chairman [16]. 237 238

239 In 1939, Alfonso Asenjo Gómez of Chile, trained in the
240 United States by Walter Dandy and in Germany by Toennis,
241 invigorated Chilean neurology and created the Hospital del
242 Salvador's Service of Neurosurgery. Neurological teaching at
243 the Catholic University School of Medicine began in 1946
244 under Enrique Uiberall, an Austrian neurologist who moved to
245 Chile during the Second World War.

246 In 1941, Vicente Dimitri was designated Professor of
247 Neurology at the University of Buenos Aires. With Dimitri,
248 neurology par excellence started in Argentina. He greatly
249 influenced those who surrounded him, including José
250 Pereyra Käfer [17].

251 In 1943, Tolosa, Longo, and Lange created the Arquivos
252 de Neuropsiquiatría in São Paulo under the direction of
253 Oswaldo Lang. This is the foremost journal of neurosciences
254 in Latin America and its articles are accessible in Index
255 Medicus, WHO, Bireme, Lilacs, and Latindex [18].

256 In 1944, Deolindo Augusto de Nunes Couto took over as
257 chairman and consolidated Brazilian neurology. In 1946, he
258 founded the Instituto de Neurología da Universidade Federal
259 do Rio de Janeiro, which carried out extensive research in
260 neurology, neurophysiology, and neurosurgery. This insti-
261 tute, later renamed Instituto de Neurología Deolindo Couto
262 da Universidade Federal do Rio de Janeiro, became the
263 international face of Brazilian neurology [19].

264 4.5. Neurology in SA after 1950

265 The discipline in the post-war period is marked by the
266 increasing influence of North American neurologists.

267 In 1951, the Acta Neurológica Latinamericana was
268 created in Uruguay, a collective Latin American neurological
269 journal that made it easier for Spanish-speaking neurologists
270 to publish their work [12].

271 In Argentina, Pereyra Käfer became Chairman of the
272 Hospital Ramos Mejía Neurology Service (formerly Hospital
273 San Roque), and then took over as Professor of Neurology at
274 the University of Buenos Aires. In 1952, he founded the
275 Sociedad Neurológica de Buenos Aires, which later became
276 the Sociedad Neurológica Argentina (SNA), a member of the
277 World Federation of Neurology (WFN) [4].

278 In 1953, the Instituto de Neurocirugía e Investigaciones
279 Cerebrales (Institute of Neurosurgery and Brain Research) of
280 Chile opened, and for the following 34 years it was directed
281 by Asenjo [20].

282 In 1954, Andrés Rosselli Quijano of Colombia traveled to the
283 Massachusetts General Hospital to study neurology with great
284 neurologists such as Raymon Adams, Maurice Victor and Miller
285 Fisher, and in 1956 he founded a neurology unit annexed to the
286 Neurosurgery Department at Hospital Militar Central de
287 Bogotá. The Sociedad Neurológica de Colombia was formed
288 in 1963 [21,22].

289 In 1953 the Archivos Venezolanos de Psiquiatría y
290 Neurología journal was created. Neurology and psychiatry

291 became independent specialties in 1959 under Pedro B. Castro,
 292 the first chairman and founder of the new department of
 293 neurology at the Universidad de Venezuela. A group of
 294 neurologists met in early 1969 to create the Sociedad
 295 Venezolana de Neurología. This society was presided by
 296 Pedro B. Castro, Pedro Luis Ponce Ducharme, and Celina de
 297 Ponce, among others [23].

298 The quarterly Pan-American Congress was conceived within
 299 the framework of the World Federation of Neurology. The first
 300 open conference was held in October 1963, in Lima, Peru, and
 301 was chaired by J. Oscar Trelles, the country's Prime Minister
 302 [24].

303 In conclusion, the cultural influence of some countries
 304 compared to others usually in the beginning provides
 305 benefits. SA's admiration of European training had led to
 306 the early birth of the specialty in some countries such as
 307 Argentina, Chile, Uruguay, Brazil and Peru [25]. Lack of
 308 access to English-written and indexed publications, and
 309 Spanish-written indexed publications not considered in
 310 international reviews makes it difficult for South American
 311 neurologists to be included in the world scientific commu-
 312 nity [26]. Then, some of SA's most accomplished scientists
 313 were unknown in international publications because of
 314 language barrier. SA's neurologists describe regional
 315 diseases such as Chagas, Cisticercosis, Huntington's and
 316 retrovirus-induced neurological diseases, among others. In
 317 recent years, "globalization" has been positive for South
 318 American countries, as cooperative projects among them, as
 319 well as with first world countries, are now resulting in a
 320 more rapid development of South American neurology.

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