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Science, Catholicism and politics in Argentina (1910–1935)

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Abstract. In *fin de siècle* Argentina a secularist ideology of science was part of the positivist world view espoused by liberals and socialists. Between the years 1910 and 1935, a period in which the Catholic Church experienced a significant cultural expansion, the activities of the Catholic naturalist Ángel Gallardo and the astronomer and priest Fortunato Devoto challenged the so far prevailing idea of science as opposed to religion. This paper explores the connections between the scientific, religious and political aspects of those figures in order to get some insights into the complexity of the relationships between science and secularization in societies with a Catholic majority.

On 16 April 1910, just before dawn, Father Fortunato Devoto pointed his binoculars towards the eastern skies from the top of the episcopal palace in the capital city of the province of Buenos Aires. As the acting director of the La Plata Observatory, he was the first person to see Halley's Comet from Buenos Aires.[1] The reporter who interviewed him for a popular illustrated weekly, puzzled perhaps by the seeming contradiction of finding a Catholic priest in a secular temple of science, compared the premises of the observatory to 'a cemetery'.[2] The cometary appearance which captured the imagination of the world was overshadowed in Argentina by the fêtes of the first centenary of the revolution of independence from Spain. Among the several learned meetings convened in Buenos Aires to celebrate the patriotic anniversary, the first International American

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1 'El cometa Halley: Su observación en La Plata', *La Prensa*, 17 April 1910, p. 10. The comet had been followed from Córdoba with the twelve-inch equatorial telescope of the National Observatory since 30 November 1909; see Charles D. Perrine, 'Résumé of observations of Halley's Comet at Córdoba', *Publications of the Astronomical Society of the Pacific* (1910) 22, pp. 211–213. La Plata is the capital city of the province of Buenos Aires, located about sixty kilometres south of the city of Buenos Aires, the capital city of the country.

2 'Una visita al Observatorio de La Plata', *Caras y Caretas* (1910) 13(606), pp. 77–79.

Scientific Congress stood as a reliable mirror of the country's scientific culture in the twilight of the belle époque.[3] The only priest to present a communication to the congress was Fr Henri Sisson, a French Dominican who that same year had published a comprehensive account of his adoptive country.[4] His contribution ('Humanitarianism in Argentine civilisation') would have passed unnoticed were it not that his passing reference to 'the dangers of immigration and anarchism' provoked an irate reaction from Sara Justo, a socialist and early feminist leader.[5] The paltry visible Catholic representation at the meeting reflected the wide gap between the institutional church and a strongly secularized scientific world. But for those who could see them, there were signs that this state of affairs was about to change: the president of the section of biological sciences was the prestigious Catholic engineer and naturalist Ángel Gallardo and the secretary of the astronomy section was Father Devoto, who delivered an informal talk about the solar and lunar tables in the astronomical calendars he was editing at that time.[6] Both of them would play an important role in the building of scientific institutions in the 1930s in Argentina.

In his 1978 *General Theory of Secularisation* the late David Martin gave a historic and cultural turn to the sociology of religion, advancing his now famous patterns of secularization related to a typology of sociocultural contexts. It will suffice to recall here that he distinguished the American and British from the French (Latin) pattern. The latter corresponds to those baroque autocracies which went through revolutions inspired by secular ideologies; in these cases 'coherent and massive secularism confronts coherent and massive religiosity'.[7] What undergirds this distinction is a basic difference between Protestant pluralism and Catholic monopoly.[8] Along these lines, Charles Taylor has also distinguished two 'ideal types' of secularization patterns. One of them ('palaeo-Durkheimian') corresponds to the baroque Catholic societies of continental Europe characterized by total identification of one church with society; the other type ('neo-Durkheimian') is typical of Anglo-Protestant societies, in which belonging to any of several churches carries a simultaneous commitment with a 'church' somehow

3 Miguel de Asúa, 'El Congreso Científico Internacional Americano', *Ciencia Hoy* (2011) 21(125), pp. 18–24, and (2012) 22(126), pp. 14–20.

4 Henri-Dominique Sisson, *La République Argentine: Description, étude sociale et histoire*, Paris: Plon, 1910.

5 Sociedad Científica Argentina, *Congreso Científico Internacional Americano*, 2 vols., Buenos Aires: Coni, 1910, vol. 1, p. 452.

6 Devoto was substituting Francesco Porro de Somenzi, the former director of the observatory; see Sociedad Científica Argentina, op. cit. (5), p. 265; Fortunato Devoto, 'Introducción', in Observatorio Astronómico de la Universidad Nacional de La Plata, *Calendario astronómico para el año 1909*, Buenos Aires: Coni, 1908, pp. i–xxxv. As a result of the 1910 meeting, an agreement was reached between the four countries of the southern cone for the joint publication of an astronomical calendar series, prepared by Friedrich W. Ristenpart, director of the Observatory of Santiago de Chile and Devoto: *Calendario astronómico para la parte austral de América del Sur. Año 1911*, Buenos Aires: Coni, 1910.

7 David Martin, *A General Theory of Secularization*, New York: Harper & Row, 1978, p. 6. Martin also identifies a 'South American (extended Latin) pattern', whose characterization depends on late twentieth-century developments.

8 Martin, op. cit. (7), pp. 27–41. See also David Martin, *On Secularization: Towards a Revised General Theory*, Farnham: Ashgate, 2005, pp. 70–74.

associated to the national political identity.[9] Latin American countries obviously went through something like the French (Latin) or palaeo-Durkheimian model of secularization, with some significant differences among them – the conflict between state and church was more acute in neighbouring Uruguay than in Argentina. In a previous paper, I adopted a long-term view to analyse the interactions between science and Catholicism in Argentina.[10] Three periods can be distinguished: (a) the rather amiable interactions during the Habsburg and Bourbon Spanish colonial rule and early independent period; (b) the highly conflictive later decades of the nineteenth century, characterized by the high tide of secularizing politics; and (c) the indifferent stage of the mid-twentieth century. The secularizing thrust that took place between 1880 and 1890 in Argentina succeeded in restricting the social sphere of influence of the Catholic Church. The 'conflict thesis' of science and religion and the work of John W. Draper's *History of the Conflict between Science and Religion* (1874) were widely discussed in the press and the parliamentary debates that accompanied the government's plans for abolishing religious education in state-funded elementary schools.[11] Nineteenth-century liberals and early twentieth-century socialists wielded Darwinian evolution as rhetorical weapon in secularist discourse.[12] Local history of science, framed in the mould of Continental positivist historiography, consecrated the identification of secularization and science and played down those historical actors and processes redolent of church incense and candles.[13]

In this paper, I will show how the culturally ingrained assumptions of a secular science promoted by liberals and socialists were challenged by the rise of politically active Catholic scientists in a period of church expansion. After providing some necessary background information about the political, ecclesiastical and scientific history of Argentina between 1910 and 1935, we shall follow the scientific careers and analyse the views on science and religion of the naturalist Ángel Gallardo and the astronomer Fortunato Devoto, in order to examine the relationships between the Catholic Church, science, politics and secularization during that period. More broadly, this essay will show that, by examining societies with non-anglophone patterns of secularization, we can open new perspectives in the understanding of the relationships between science and religion.

9 Charles Taylor, *A Secular Age*, Cambridge, MA: Harvard University Press, 2007, pp. 454–456, 486–487.

10 Miguel de Asúa, 'Three centuries of scientific culture and Catholicism in Argentina: a case study of long trends', in Bernard Lightman (ed.), *Rethinking History, Science, and Religion: An Exploration of the Complexity Principle*, Pittsburgh: University of Pittsburgh Press, 2019, pp. 37–49.

11 Miguel de Asúa, 'Draper, the "conflict thesis", and secularising politics in late nineteenth-century Argentina', *Journal of Religious History* (2019) 43(3), pp. 305–327. Much work is being done on the conflict thesis, most of it on Protestant anglophone contexts; see Jeff Hardin, Ronald L. Numbers and Ronald A. Binzley (eds.), *The Warfare between Science and Religion: The Idea That Wouldn't Die*, Baltimore: Johns Hopkins University Press, 2018; James C. Ungureanu, *Science, Religion, and the Protestant Tradition: Retracing the Origins of Conflict*, Pittsburgh: University of Pittsburgh Press, 2019.

12 Miguel de Asúa, 'Darwin among the pagans: secularisation and the reception of the theory of evolution in Buenos Aires', *Science and Christian Belief* (2019) 31(1), pp. 4–25.

13 Miguel de Asúa, 'The "conflict thesis" and positivist history of science: a view from the periphery', *Zygon* (2018) 53(4), pp. 1131–1148.

Church and politics in transition

The year 1916 marked the end of the long conservative era in Argentina, which had opened in 1880.[14] The Radical Civic Union (hereinafter UCR, after its name in Spanish), a middle-class reformist party, guided the country for the next fourteen years during the presidencies of its leader, Hipólito Yrigoyen (1916–1922), and his more conservative successor, Marcelo T. de Alvear (1922–1928). Against the background of the beginning of the Great Depression, Yrigoyen's second term of office (1928–1930) was interrupted by the military coup led by General Félix Uriburu. Uriburu's short rightist and nationalistic rule (September 1930–February 1932) – a failed attempt at establishing a corporatist state – was followed by a return to a more politically liberal orientation with General Agustín P. Justo (1932–1938), elected president in rigged elections under a coalition of conservatives, anti-Yrigoyenist radicals and independent socialists.[15]

By the beginning of the First World War, Argentina had gone through two decades of breakneck economic and demographic expansion; by 1930 growth was keeping pace with that of Canada and Australia.[16] Between 1904 and 1913 the net flow of immigration to the country was never less than 100,000 persons per year and in some years it reached 200,000.[17] In 1914, 1,576,000 people lived in Buenos Aires; about half of them were foreigners.[18] Immigration came mostly from Italy and Spain, but the flow from non-Catholic lands was not insignificant. While the foundational thinkers of the country, such as Domingo F. Sarmiento and Juan B. Alberdi, had seen immigration as the only available answer to the challenge of creating a modern nation out of the empty wilderness of 'the desert', by the turn of the century the ruling elites showed increasing signs of anxiety vis-à-vis the explosive transformation of society; as early as the 1880s literature gave expression to these fears.[19] Answers to the challenge ranged from the law that allowed the executive power to expel any immigrant considered 'undesirable' (1902) to efforts at integration and nationalization through the patriotic rituals implemented in public elementary schools designed to turn children fresh off the boat into fully fledged Argentine citizens.[20] The visit to Buenos Aires of the Infanta Isabella, the heir to the Spanish throne, during the centennial celebrations of independence was a symbol of the reconciliation with Spain and of the felt need to recover the Hispanic heritage, systematically despised by Francophile *fin de siècle*

14 Ezequiel Gallo, 'Society and politics, 1880–1916', in Leslie Bethell (ed.), *Argentina since Independence*, Cambridge: Cambridge University Press, 1993, pp. 79–111.

15 David Rock, *Argentina 1516–1987: From Spanish Colonization to Alfonsín*, Berkeley: University of California Press, 1987, pp. 191–213.

16 Rock, op. cit. (15), pp. 162–199.

17 Ernesto Tornquist & Co. Limited, *The Economic Development of the Argentine Republic in the Last Fifty Years*, Buenos Aires, 1919, p. 15.

18 República Argentina, *Tercer Censo Nacional levantado el 1° de junio de 1914*, 10 vols., Buenos Aires: Rosso, 1916, vol. 2, p. 3.

19 Eduardo Gargurevich, 'La reacción anti-inmigrante en la literatura argentina de los ochenta', *Revista de Crítica Literaria Latinoamericana* (1994) 20(39), pp. 91–107.

20 Fernando J. Devoto, 'La inmigración', in Academia Nacional de la Historia, *Nueva Historia de la Nación Argentina*, 10 vols., Buenos Aires: Planeta, 2000, vol. 4, pp. 77–107.

intellectuals. This change in the atmosphere was given expression in the work of a group of influential writers and thinkers, such as Manuel Gálvez, Ricardo Rojas, Carlos Ibarguren and Leopoldo Lugones, who fostered a type of nationalism predicated upon traditional Hispanic values. While some of them remained faithful to the ideals of conservative political liberalism (Ángel Gallardo was among them), others would eventually shift to an overtly authoritarian and militaristic style of nationalism, verging on fascism.[21] Many of the immigrants who huddled in the slums of Buenos Aires were anarchists and socialists who led the organization of labour unions and stirred social unrest.[22] The wave of strikes and uprisings and the consequent repression reached its peak in January 1919 in Buenos Aires ('Tragic Week') and in the labourers' revolt in Patagonia (1920–1922), both under governments of the UCR. If, during the last decades of the nineteenth century, secular feeling had been the hallmark of the Europeanized elite, by the first decade of the twentieth century anticlericalism was not uncommon among the immigrant masses from rural areas of Mediterranean Europe.

The secularizing laws of the 1880s, a victory of the liberal conservative elite of cosmopolitan Buenos Aires then in power, had further restricted the social influence of an already weak Catholic Church, isolated from Rome and dependent upon the state.[23] By the beginning of the 1890s, the lay leaders who had fought to stop the tide of secularization by involving Catholics in politics had died and with them the ideal of a Catholic party. Catholic lay and clerical activism shifted from political to social concerns, as shown by the creation of the Workers' Circles by the German Redemptorist priest Friedrich Grote and other initiatives aimed at the creation of a Catholic labour movement strong enough to withstand the challenge of socialism and anarchism.[24] While membership in Catholic unions during the 1915–1930 period amounted to 40,000–45,000 affiliates, by 1920 the socialists could boast around 100,000 supporters.[25] Lay Catholic intellectuals such as Santiago O'Farrell, Alejandro Bunge, Arturo M. Bas, Juan F. Cafferata, Joaquín Cullen or Emilio Lamarca were social reformers preoccupied by questions of the law, economy and society. There were no Catholic natural scientists in Argentina before the twentieth century. While by the turn of the century the energies of the church in Argentina were spent on the social question, the hierarchy reached some kind of accommodation with the liberal elites in the face of the threat of radicalism and anti-clerical sentiment; this implicit settlement was at the back of the lavish donations for charities and church buildings and the sumptuous diplomatic

21 David Rock, *Authoritarian Argentina: The Nationalist Movement, Its History and Its Impact*, Berkeley: University of California Press, 1993, pp. 37–54. The best account of this theme is Fernando J. Devoto, *Nacionalismo, fascismo y tradicionalismo en la Argentina moderna*, Buenos Aires: Siglo XXI, 2005, pp. 47–119.

22 Arthur P. Whittaker, *Argentina*, Englewood Cliffs, NJ: Prentice-Hall, 1964, pp. 53–63.

23 Lee B. Kress, 'Argentine liberalism and the Church under Julio Roca, 1880–1886', *The Americas* (1974) 30, pp. 319–340.

24 Nestor Auza, *Aciertos y fracasos sociales del catolicismo argentino*, 3 vols., Buenos Aires: Docencia and Don Bosco, 1987–1988, vol. 1, p. 22.

25 Austen Ivereigh, *Catholicism and Politics in Argentina, 1810–1960*, New York: St Martin's Press, 1995, p. 64. The fullest treatment of social Catholicism in Argentina in the 1890–1930 period is Auza, op. cit. (24).

display on the world scene of the belle époque – a stage upon which Gallardo would move at ease.[26]

Catholic social action also found expression in the several unstable organizations of the laity which succeeded each other in the course of the first two decades of the twentieth century and were inspired by the ideas of Continental Christian democracy.[27] In the 1920s, Catholic culture flourished with new institutions such as the Centre of Religious Studies for Ladies (1919, hereinafter CER, after its name in Spanish), the Courses of Catholic Culture (1922, hereinafter CCC), and the journal *Criterio* (1928). As had been the case with the Catholic social and labour movement, this effervescence of lay cultural enterprises was in the event bottled up by the hierarchy, who tried to bring it under its control.[28]

The strong crisis concerning the nomination of the Archbishop of Buenos Aires that took place during Alvear's presidency was a signal that the paradigm of a weak church at the service of a strong state was changing. The Vatican repeatedly rejected the nomination of Msgr De Andrea, Bishop of Temnos (1920), the government's candidate, who was friendly to liberal democracy (in line with the *patronato* inherited from colonial times, the government sent a shortlist of nominees to Rome to be approved).[29] Much of the negotiations was conducted by Ángel Gallardo, by then Alvear's minister of foreign affairs.[30] After three years with a vacant see, the government was compelled to accept De Andrea's resignation of his candidacy and the nomination of a compromise candidate, the Franciscan Fr José M. Bottaro; in return, the papal nuncio was declared *persona non grata*. The protracted conflict was a serious challenge to the prevailing regalist settlement. The new assertiveness of the Argentine Catholic Church was tied to its acquiescence with the increasing Romanization of the world church, and locally with the growing enthusiasm of laity and clergy alike for the model of integral Catholicism tied with authoritarian versions of nationalism which would mark the relationships between church and state in the interwar years and beyond.[31]

Austen Ivereigh has aptly described the 'Catholic Renaissance' of the Argentine Catholic Church in the first decades of the twentieth century as a consequence of the transition from the almost Gallican church of the liberal state consolidated in 1880 to

26 José M. Ghio, *La iglesia católica en la política argentina*, Buenos Aires: Prometeo, 2007, p. 37; Miranda Lida, *Historia del catolicismo en la Argentina entre el siglo XIX y el XX*, Buenos Aires: Siglo XXI, 2015, pp. 41–44, 55–57.

27 Roberto Di Stefano and Loris Zanatta, *Historia de la Iglesia en la Argentina: Desde la conquista hasta fines del siglo XX*, Buenos Aires: Grijalbo Mondadori, 2000, pp. 367–377.

28 Carlos A. Floria and Marcelo Montserrat, 'La política desde *Criterio* (1928–1977)', *Criterio* (24 December 1977) 50(1777–1778), pp. 762–789; Fernando Devoto, 'Atilio Dell'Oro Maini', *Prismas: Revista de historia intelectual* (2005) 9, pp. 187–204; Raúl Rivero de Olazábal, *Por una cultura católica: El compromiso de una generación argentina*, Buenos Aires: Claretiana, 1986.

29 Ambrosio Romero Carranza, *Itinerario de Monseñor de Andrea*, Buenos Aires, 1957, pp. 213–223; Miranda Lida, *Monseñor Miguel de Andrea: Obispo y hombre de mundo (1877–1960)*, Buenos Aires: Edhasa, 2013, pp. 91–108.

30 Jorge E. Gallardo, *Conflicto con Roma (1923–1926): La polémica por Monseñor de Andrea*, Buenos Aires: El Elefante Blanco, 2004.

31 Fortunato Mallimaci, *El catolicismo integral en la Argentina (1930–1945)*, Buenos Aires: Biblos, 1988; Devoto, op. cit. (21), pp. 169–262.

the 'integral Catholicism' of the 1930s and early 1940s.[32] Interpretations focused on the development of social Catholicism have seen the changes in the three first three decades of the twentieth century as the transition from a 'federative' plural church with leadership of the laity, modelled upon German social Christianity, to an Italian type of church in which clericalism, Romanization, unification and obedience to the hierarchy were the characteristic traits.[33]

The secularist impulse that characterized the 1880s in Argentina began to grind to a halt in the 1890s and barely survived in the 1930s. In this transitional period, the Catholic Church experienced a renovation in all aspects of its life. For the first time in the history of the country, a number of Catholic scientists became publicly visible. This phenomenon is of peculiar interest, because it seemed to contradict what had become a common-sense assumption resulting from the hegemonic influence of secularizing positivism, that the very idea of religion having anything to do with science was inconceivable. Science in Argentina had been a key element in the material and symbolic blueprint of liberal nation building: museums of natural history, astronomical observatories, geographical societies and public-health institutes embodied the gospel of progress and civilization. There were no Catholic scientific institutions.[34]

Gallardo

It is against this backdrop that Gallardo, born into a wealthy patrician family of Spanish origin, must be understood. A lifelong Catholic, Ángel Gallardo (1867–1934) participated as a youth in the 1890 armed revolt that gave birth to the Civic Union (later UCR), and though he later formally quit the party, he nevertheless remained within its orbit. When, in 1919, President Yrigoyen called him to preside over the National Council of Education (hereinafter CNE, after its name in Spanish), he was already a distinguished personality. He went on to serve as representative of his country in Italy for a year (1921) and then as minister of foreign affairs during Alvear's presidency (1922–1928) when Argentina 'glided gently in years of prosperity, without shocks or difficulties'.[35] Between September 1927 and January 1928, Gallardo made a diplomatic farewell tour in the course of which he was entertained by almost all the heads of state of Western Europe. During the presidency of Justo, he served for two years as rector of the University of Buenos Aires (1932–1934), at that moment shaken by student unrest. At the time of his death, Gallardo belonged to most scientific institutions and learned academies in Argentina; he had crossed the ocean back and forth seven times, walked with kings and, as expressed by one chronicler, experienced 'the spiritual peace of a savant and a believer'.[36] His

32 Ivereigh, op. cit. (25), pp. 18, 84–91.

33 Auza, op. cit. (24), vol. 3, pp. 11–20; Di Stefano and Zanatta, op. cit. (27), pp. 377–381.

34 For an overview of scientific institutions in Argentina see Miguel de Asúa, *Una gloria silenciosa: Dos siglos de ciencia en Argentina*, Buenos Aires: Zorzal, 2010.

35 Félix Luna, *Alvear*, Buenos Aires: Hyspamerica, 1986, p. 66.

36 *La Prensa*, 16 May 1934, cited in Guillermo Furlong, *Ángel Gallardo*, Buenos Aires: ECA, 1964, p. 160.

funeral was attended by President Justo, his ministers, the Archbishop of Buenos Aires and other civil and ecclesiastical personalities.[37]

Gallardo never showed any enthusiasm for integral Catholicism and in his public career acted as if the church should be subordinate to the state. But the conflict built around the nomination of De Andrea put his allegiances to the test.[38] Later, he declared that at that time he had 'intimately prayed to God to allow a solution with detriment neither to the Fatherland nor to the Church'.[39] Although he seems to have made every effort to reach a negotiated outcome between the state and the Catholic Church, at no time did he hesitate to loyally follow Alvear's policy.[40] A few years earlier, in 1918, Gallardo had also shown his prioritization of the civil sphere over the ecclesiastical. As director of the CNE, he supported a regulation (in the end relaxed) that prescribed that teachers in elementary and secondary schools should be graduates from Argentine institutions, thus excluding from those positions the foreign priests who taught in private Catholic schools.[41]

Throughout his life, Gallardo was a democratic conservative and a nationalist. Nationalism seems to have been in him a sentiment closely related to traditions, duty and the love of the land and its creatures – a different thing from the kind cultivated in the 1930s and 1940s by far-right Catholics, many of them transatlantic camp followers of Charles Maurras's Action française. Gallardo was certainly situated towards the right of the political spectrum and he did not hide his strong anti-communist convictions, but he always remained within the bounds of liberal democracy.[42] If we are to take him at face value, his passing admiration for Mussolini, whom he met twice, and his press declarations about fascism (which he saw as 'sympathetic for its patriotism, its nationalist ideal, and its disinterested spirit') were those of a hidebound conservative in the 1920s.[43] In August 1926, a socialist representative in the Chamber of Deputies accused him of having 'a profound admiration for the political system' dominating Italy at that time. Gallardo candidly admitted that his spirit 'might be reactionary', but his 'democratic faith was absolute, frank, and incontrovertible', and he considered any 'anti-democratic suggestion' a 'true crime'.[44]

Gallardo's speech at the moment of his nomination as rector of the University of Buenos Aires on 11 May 1932 was a manifesto of nationalistic faith, in tune with the

37 Furlong, op. cit. (36), pp. 151–155.

38 Ángel Gallardo, *Memorias para mis hijos y mis nietos*, Buenos Aires: Academia Nacional de la Historia, 1982, pp. 347–386.

39 Gallardo, op. cit. (38), p. 357.

40 Gallardo, op. cit. (38), pp. 383–386; Gallardo, op. cit. (30), pp. 58–62.

41 Dimitri P. Papanikas, 'La iglesia de la raza: La iglesia católica española y la construcción de la identidad nacional en Argentina', PhD dissertation, Madrid, 2012, pp. 125–126.

42 For De Andrea on this see John J. Kennedy, *Catholicism, Nationalism, and Democracy in Argentina*, Notre Dame: University of Notre Dame Press, 1958, pp. 139–146.

43 'Declaraciones del ministro argentino de relaciones exteriores', *La Nación*, 24 December 1922, p. 1; Gallardo, op. cit. (38), pp. 316–319, 438–440; Alfredo L. Palacios, 'El ideal de las democracias iberoamericanas', *Nosotros* (1923) 17(172), pp. 5–46, 35.

44 Congreso Nacional, *Diario de sesiones de la Cámara de Diputados: Año 1926*, 8 vols., Buenos Aires: Imprenta de la Cámara de Diputados, 1926, vol. 3, pp. 551–555.

spirit of the age. Though he decried 'aggressive and xenophobic nationalism', he declared that the very reason for the existence of the university was 'the patriotic and national ideal' and 'the shaping of an enlightened national conscience', besides the cultivation and progress of abstract science.[45] Two years after this unambiguous declaration, Gallardo accepted heading the local board of the Buenos Aires Pacific Railway.[46] As a result of the global depression and local circumstances, the British-owned railway companies were experiencing large losses. In order to reach an agreement acceptable to them and the government, President Justo set up an official commission in which Gallardo should sit as representative of the companies – an arrangement that did not materialize for he died shortly after.[47] The growing wave of anti-British feeling that swept the country in those years (partly as a result of the 1933 commercial treaty with Britain, urged by Argentina to maintain the quota of meat exports and generally seen as favouring the British) was propelled by far-right nationalist intellectuals and integral Catholics.[48] One of them, Ibarguren, at one time a good friend of Gallardo's, considered that the treaty 'reinforced the old submission of the Argentine economy to the British empire'.[49] Gallardo's position was subtly but crucially different from this; his nationalism was nearer to Justo's conservative liberal state than to a fascist conception of society.

Biologist and naturalist

Gallardo obtained his degree in engineering in the University of Buenos Aires (1894) and subsequently got a doctor's degree in the natural sciences from the same institution (1902). Much of his published work rests on the intersection of these fields. In the communication he read to the 1900 International Congress of Mathematics in Paris, he argued for the application of statistics to the problems of biological variation, inheritance and evolution.[50] Gallardo taught botany and zoology in the schools of Exact and Natural Sciences, of Agronomy and of Pharmacy of the University of Buenos Aires and presided over the SCA and the Argentine Society of Natural History.[51] He organized the first Latin American Scientific Congress (1900) and was vice president of the 1910 International Congress of Americanists in Buenos Aires. Undoubtedly, his most durable institutional commitment was as director of the Museum of Natural

45 'El nuevo rector de la Universidad', *Archivos de la Universidad de Buenos Aires* (April–May 1932) 7, pp. 11–13.

46 Furlong, op. cit. (36), p. 143; Buenos Aires & Pacific Railway Company, *History and Characteristics, 1882–1933*, Buenos Aires, 1933.

47 Julian S. Duncan, 'British railways in Argentina', *Political Science Quarterly* (1937) 52(4), pp. 559–582, 570–572; Winthrop R. Wright, *British-Owned Railways in Argentina: Their Effect on Economic Nationalism, 1854–1948*, Austin: University of Texas Press, 1974, pp. 136–157.

48 David Rock, *The British in Argentina: Commerce, Settlers and Power, 1800–2000*, Cham: Palgrave Macmillan, 2019, pp. 276–286.

49 Carlos Ibarguren, *La historia que he vivido*, Buenos Aires: Dictio, 1977, p. 602.

50 Ángel Gallardo, 'Les mathématiques et la biologie', in E. Duporcq (ed.), *Compte rendu du deuxième Congrès international des mathématiciens*, Paris: Gauthier-Villars, 1902, pp. 395–403.

51 'Datos biográficos de don Ángel Gallardo', *Boletín de la Academia Argentina de Letras* (1934) 2, pp. 105–113.

Sciences in Buenos Aires (1911–1918). Although his efforts to move the museum from its cramped old quarters to a new location that the institution badly needed were unsuccessful, he was able to recruit qualified naturalists and promoted the growth of the collections.[52]

Gallardo studied natural history in Buenos Aires under Karl Berg, a naturalist born in Courland who succeeded Burmeister as director of the Public Museum in Buenos Aires, but he learnt his biology in Paris, where, during his first and second European voyages (April 1895–March 1896, November 1899–June 1901) he became acquainted with the zoologist Yves Delage and took courses with Gustave Loisel, Léon Guignard, Alfred Giard and Félix Le Dantec (Delage, Giard and Le Dantec were vocal secularists and anti-clerical supporters of the Third Republic).[53] The kind of biological problems he tackled would be those discussed in this circle of natural scientists, who for the most part sustained a neo-Lamarckian view of evolution.[54] Gallardo gained a certain notoriety with his 'dynamic' theory of cell division, according to which the mitotic apparatus was an expression of a force field generated by the centrosomes charged with polar charges, analogous to Faraday's magnetic fields.[55] His dissertation on this matter was enthusiastically reviewed in *Nature* by the Irish natural historian Marcus Hartog, who initiated experimental work along the same lines.[56] The theory was not entirely original, having been proposed by Hermann Fol in 1879 and in 1895 by H.E. Ziegler, but Gallardo worked it out independently.[57] In his dissertation, the latter allowed himself to depart from his experimental results and freely postulate a 'cariocynetic force', a Newtonian force of unknown nature which could also be used to account for the phenomena of heredity and fecundation not in terms of matter but of energy.[58] Gallardo's neo-vitalism drew upon the natural-philosophical speculations of Johann Reinke, Lord Kelvin's theory of vortex atoms (both of whom he knew at second hand), and the book of the French physiologist Louis Bard, which he had reviewed.[59]

52 Martín Doello-Jurado, 'Ángel Gallardo (1867–1934): Su actuación en el Museo de Buenos Aires', *Anales del Museo Argentino de Ciencias Naturales* (1934–1936) 38, pp. ix–xliv; Miguel de Asúa, 'Dos siglos y un museo', in Pablo Penchaszadeh (ed.), *El Museo Argentino de Ciencias Naturales: 200 años*, Buenos Aires: MACBN-Conicet, 2012, pp. 13–69. Cf. Susan Sheets-Pyenson, *Cathedrals of Science: The Development of Colonial Natural History Museums during the Late Nineteenth Century*, Kingston and Montreal: McGill-Queen's University Press, 1988.

53 Gallardo, op. cit. (38), pp. 79–82, 95–111.

54 For Giard, Delage and Le Dantec see P.J. Bowler, *The Eclipse of Darwinism: Anti-Darwinian Evolution Theories in the Decades around 1900*, Baltimore: Johns Hopkins University Press, 1983, pp. 110–112, 113–115. See also Harry W. Paul, *The Edge of Contingency: French Catholic Reaction to Scientific Change from Darwin to Duhem*, Gainesville: University Press of Florida, 1979, pp. 54–60.

55 Ángel Gallardo, 'Essai d'interprétation des figures karyokinétiques', *Anales del Museo Nacional de Buenos Aires* (1896) 5, pp. 11–22; Horacio Damianovich, 'Ángel Gallardo y su teoría de la cariocinesis', *Anales de la Sociedad Científica Argentina* (1942) 133, pp. 102–131.

56 Ángel Gallardo, *La interpretación dinámica de la division celular*, Buenos Aires: Coni, 1902; Marcus Hartog, 'Dynamic interpretation of cell division', *Nature* (13 November 1902) 67(1724), pp. 42–43.

57 See the discussion in Edward B. Wilson, *The Cell in Development and Inheritance*, 2nd edn, New York: Macmillan, 1911, pp. 108–111.

58 Gallardo, op. cit. (56), pp. 84–95.

59 Johann Reinke, *Die Welt als That: Umrisse einer Weltansicht auf wissenschaftliche Grundlage*, Berlin: Gebrüder Paetel, 1899; Helge Kragh, 'The vortex atom: a Victorian theory of everything', *Centaurus* (2002)

Gallardo introduced genetics in Argentina in a series of works for specialists and also for the general public published between 1908 and 1910.[60] At the time of the polemics between Mendelians and the followers of the biometric school of Karl Pearson, he insisted upon the lack of contradiction between the approaches.[61] He also devoted a number of papers to botanical subjects, in particular to teratology, perhaps a result of his having being in charge of the government's Division of Agriculture (1904–1905).[62] But his most lasting interest, and one which accompanied him from childhood to mature years, was ants, a subject to which he made enduring contributions.[63]

Science, religion and evolution

The traditional notion of God's manifestation in nature is not absent from Gallardo's writings: the value of learning the laws that rule the stars is that 'we can discern in them the sublime harmony established by God in Creation'; fungus-growing ants 'show as in lightning God's supreme intelligence, reflected in the narrow aspect of their instinct'.[64] These were articles for the general public; his academic papers were free of any philosophical or religious allusions. As shown by his 1902 dissertation, he did entertain broad natural-philosophical schemes and advanced hypotheses (which he called *Arbeitshypothesen*) that could explain the phenomena of living beings in terms he saw as congruent with a theistic world view, but he was conscious that indulging in this kind of speculation was 'to overstep the strictly positivistic scientific terrain'.[65] Gallardo was educated in a cultural atmosphere oversaturated with the

44, pp. 32–114; Ángel Gallardo, 'Problemas biológicos. Algunas reflexiones sobre la especificidad celular y la teoría física de la vida, de Bard', *Revista de Derecho, Historia y Letras* (1899) 4, pp. 540–565 (review of Louis Bard, *La spécificité cellulaire*, Paris: Georges, Carré et Naud, 1899).

60 The main publications are Ángel Gallardo, *Las investigaciones modernas sobre la herencia*, Buenos Aires: La ciencia médica, 1908; Gallardo, 'Sur l'épreuve statistique de la loi de Mendel', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* (1908) 146, pp. 361–362; Gallardo, 'Recientes contribuciones matemáticas al estudio de la las leyes de la herencia biológica', *Anales de la Sociedad Científica Argentina* (1909) 68, pp. 185–208. See also Nancy Stepan, *'The Hour of Eugenics': Pace, Gender, and Nation in Latin America*, Ithaca, NY: Cornell University Press, 1900, p. 70; and Adriana Novoa and Alex Levine, *From Man to Ape: Darwinism in Argentina, 1870–1920*, Chicago: The University of Chicago Press, 2010, pp. 107–109.

61 See Karl Pearson, 'On the ancestral gametic correlations of a Mendelian population mating at random', *Proceedings of the Royal Society of London: Series B, Containing Papers of a Biological Character* (1909) 81, pp. 225–229. For background of this issue see Lyndsay A. Farrall, 'Controversy and conflict in science: a case study. The English biometric school and Mendel's laws', *Social Studies of Science* (1975) 5, pp. 269–230; William B. Provine, *The Origins of Theoretical Population Genetics*, Chicago: The University of Chicago Press, 2001, pp. 56–89; Nicholas Gillham, 'The battle between the biometricians and the Mendelians: how Sir Francis Galton caused his disciples to reach conflicting conclusions about the hereditary mechanism', *Science & Education* (2013) 24, pp. 61–75.

62 'Bibliografía del Dr. Gallardo', *Anales de la Sociedad Científica Argentina* (1942) 133, pp. 169–184, 172–173.

63 Carlos Bruch, 'La obra entomológica del doctor Ángel Gallardo', *Revista de la Sociedad Entomológica Argentina* (1934) 6, pp. 234–242.

64 Ángel Gallardo, prologue, in Martín Gil, *Cosas de arriba*, Córdoba: La Italia, 1909, pp. i–v, iv; Gallardo, 'El instinto de las hormigas', *Revista de Filosofía* (1915) 2, pp. 1–20, 20.

65 Gallardo, op. cit. (56), p. 82.

positivism of *fin de siècle* Argentina. The ideas of Comte and Spencer became popular in the 1880s as the ideological framework of scientism in public discourse; they were revived when local socialist intellectuals combined positivism with materialism, on the grounds of their common opposition to a metaphysical world view.[66] 'Positivism' was for Gallardo just standard scientific methodology.

In his 1916 conference on science and belief before university students, Gallardo argued that there should be no conflict between religion and science because 'they correspond to different spheres of the human spirit, between which there could be no interference'.[67] Religion is 'supra-rational' – it concerns 'mysteries which reason can neither demonstrate, nor even conceive' – while scientific method is 'positivistic' since 'departing from the data offered to the senses, reason deduces more or less general principles'. 'Absolute' truth is like the limit of a variable function, which can never be attained. In the lab, one should be 'entirely positivist and objective' and leave aside any qualms about research results conflicting with faith because scientific truth could never be in contradiction with absolute truth. In 1939, Nobel Prize-winner Bernardo Houssay (1947), himself a liberal, saw Gallardo as a 'fervent believer' and 'a savant of deeply religious spirit'. On the very sensitive issue of evolution, he pointed out that 'since his beginnings in science [Gallardo] adopted evolutionistic ideas which he held during all his life, without ever experiencing conflict with his ingrained religious beliefs'.[68]

Certainly Gallardo did not doubt the fact of biological evolution, but he was less sure about its mechanism – in this, he concurred with his French teachers. In a brief article in a 1914 issue of the *Illinois State Register*, he calls Darwin's evolution 'one of the great progressive movements of the last century', but at the same time remarks that 'the mechanism is debated' and goes into hazy speculation about objections to the theory 'from a philosophical point of view'.[69] He opens the note by remarking that he does not believe 'that there could be any conflict between religion and science' and proclaims his accord with Father John A. Zahm CSC, the author of a work which essayed a reconciliation between evolution and Catholic doctrine (*Evolution and Dogma*, 1896; Zahm had visited Argentina in 1916 accompanying Theodore Roosevelt on his Latin American tour).[70] If Gallardo had any reservations about Darwinian evolution, they were

66 Oscar Terán, *Vida intelectual en el Buenos Aires fin-de-siglo (1880–1910): Derivas de la 'cultura científica'*, Buenos Aires: FCE, 2000; J.R. Hentschke, 'Argentina's Escuela Normal de Paraná and its disciples: mergers of liberalism, Krausism, and Comtean positivism in Sarmiento's temple for civilising the nation, 1870 to 1916', *Iberian and Latin American Studies* (2011) 17, pp. 1–31.

67 Ángel Gallardo, 'Creencia y ciencia', *Tribuna Universitaria* (1916) 3, pp. 103–107.

68 Bernardo Houssay, 'Ángel Gallardo y el porvenir de las ciencias en la Argentina', in Ariel Barrios Medina and Alejandro Paladini (eds.), *Escritos y discursos del Dr. Bernardo A. Houssay*, Buenos Aires: Eudeba, 1989, pp. 433–447, 436–438.

69 Ángel Gallardo in Elmer J. Kneale (ed.), 'Darwin, science, and the church', *Illinois State Register*, 23 August 1914, p. 3.

70 John A. Zahm CSC, *Through South America's Southlands*, New York: Appleton, 1916. In his memoirs Gallardo mentions that he met him at the International Congress of Americanists in Buenos Aires, but Father Zahm is not mentioned in the proceedings of the meeting. Gallardo, op. cit. (38), p. 135. For Zahm's evolutionist ideas see Thomas F. O'Connor, 'John A. Zahm, C.S.C.: scientist and Americanist', *The Americas* (1951) 7(4), pp. 435–462; Philip R. Sloan, 'Bringing evolution to Notre Dame: Father John Zahm, C.S.C. and theistic evolutionism', *American Midland Naturalist* (2009) 161, pp. 189–205. There was

motivated by scientific, not religious, questions. In his 1916 address as president of the Argentine Society of Natural History, he claimed that evolutionary theory, 'initiated by Lamarck and … established upon more solid bases by Darwin', showed the importance of 'a dynamical point of view' in biological problems (see above). He recalls that it was in the Argentine Pampas that Darwin adumbrated his new theory, 'while galloping along the immense and lonely plains', as a result of the impression upon his spirit of the South American natural world; Gallardo then goes on to expand on the palaeontological contributions made by Ameghino.[71] Florentino Ameghino was a famous Argentine palaeontologist and former director of the Museum that Gallardo was directing, who after his death in 1911 evolved into an emblem of secular scientism and anti-Catholic sentiment.[72] It is telling that in the homage paid to him in 1915, Gallardo warmly remembered his predecessor and even extolled his debatable theories about the Tertiary origin of the human being in the Pampas (more on this later).[73] Moreover, in his handbook of zoology intended for preparatory courses for the university and also used in secondary schools, Gallardo included a brief section on the variability of species in which he provided sketches of evolutionary ideas (Lamarck, Darwin and De Vries).[74]

The bishop astronomer

Fortunato Devoto (1872–1941) was born in Buenos Aires soon after the arrival in Argentina of his middle-class Genoese immigrant parents.[75] At fifteen years old, he entered the Pontifical Latin American College in Rome and studied in the Gregorian University, where he obtained degrees in philosophy, theology and canon law while also studying astronomy under Gaspar S. Ferrrari SJ. He was ordained at the end of 1895 and returned to his country, where he enjoyed the patronage of Msgr Mariano Espinosa, the Archbishop of Buenos Aires, eager to promote bright young priests who had been trained in Europe. Devoto became chaplain of nun congregations who ran elite secondary schools for girls; he was named secretary of the cathedral chapter of Buenos Aires and in 1900 took charge of the yearly publication of the Archbishopric of Buenos Aires. Never abandoning his astronomical studies, in November 1907 he joined the Observatory of La Plata, was named its director in March 1910, and resigned

a Spanish version of Zahm's book: *La evolución y el dogma* (tr. Miguel Asúa), Madrid: Sociedad Editorial Española, 1905.

71 Ángel Gallardo, 'Los estudios biológicos en la República Argentina', in *Primera Reunión Nacional de la Sociedad Argentina de Ciencias Naturales: Tucumán, 1916*, Buenos Aires: Coni, 1919, pp. 1–12, 4.

72 Asúa, op. cit. (12).

73 'Florentino Ameghino: Homenaje a su memoria', *La Nación*, 7 August 1915, p. 10.

74 Ángel Gallardo, *Zoología*, 8th edn, Buenos Aires: Estrada, [1917], pp. 80–83.

75 'Datos biográficos del Iltmo. y Rvmo. Sr. Dr. D. Fortunato Devoto', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1928) 28, pp. 109–113; 'Excmo. y Revmo. Monseñor Fortunato J. Devoto: Falleció en Buenos Aires el 29 de junio de 1941', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1941) 41, pp. 457–460; *El Pueblo*, 30 June–1 July 1941, pp. 5, 8, 11; Félix Aguilar, 'Monseñor Fortunato Devoto', *Revista Astronómica* (1941) 13, pp. 259–263.

after little more than a year as a result of an institutional conflict.[76] Two months later, he travelled to Paris on a fellowship granted by the national government.[77] There he obtained the *licenciature* in sciences, and from 1914 to May 1917 worked at the Paris Observatory with 'beaucoup de zèle', if we are to trust his supervisor, Guillaume Bigourdan.[78] It seems that at the end of his first year of study in Paris he toyed with the idea of devoting himself entirely to his priestly work, but Pius X urged him not to abandon his astronomical career.[79] His training included equatorial reductions, attending the observatory's time service, use of the meridian circle and astronomical photography.[80] An asteroid (1328 Devota) was named in his honour by its discoverer, Benjamin Jekhowsky, who had been Devoto's fellow student at the Paris Observatory.[81]

Devoto published his observations of the Delavan comet and was offered the directorship of the observatory of the Castle of Abbadia (Hendaye), a dependency of the Académie des sciences; since the war demanded that the institution should be headed by a native in the event the arrangement did not work out.[82] Devoto nevertheless worked in that small observatory for a year and kept up a lifelong connection with France: in 1933 he was decorated an Officer of the Legion of Honour for 'service rendered to France during the war'.[83] The school magazine of the San José secondary school run by the Betharramites in Buenos Aires (a French Basque congregation) took the opportunity to show the pupils how Devoto's career was 'a new eloquent testimony of the beautiful accord between science and faith'.[84]

Devoto returned to his country in 1918, after seven years in Europe; the press organ of the archbishopric of Buenos Aires dubbed him 'one of the most renowned Argentine savants', while extolling his example as a rebuff to 'those who declare that science and faith cannot walk hand in hand'.[85] During the 1920s, he was a chief protagonist of the Catholic cultural renaissance in Buenos Aires as counsellor of the CER and an active figure in the CCC, and also through his participation in *Criterio*.[86] During the years the government was enmeshed with Rome over the issue of the new archbishop,

76 'Observatorio de La Plata: Renuncia del director', *La Prensa*, 8 June 1911, p. 14; 'Renuncia Fortunato Devoto', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1911) 11, pp. 508–512.

77 Decree of President Roque Sáenz Peña, 14 July 1911, in *Revista Eclesiástica del Arzobispado de Buenos Aires* (1911) 11, p. 593.

78 *Rapport annuel sur l'état de l'Observatoire de Paris pour l'année 1914*, Paris: Imprimerie nationale, 1915, p. 22.

79 José Canovai, 'Oración fúnebre', *Estudios* (1941) 67, pp. 70–77.

80 *Rapport annuel sur l'état de l'Observatoire de Paris pour l'année 1916*, Paris: Imprimerie nationale, 1917, p. 17.

81 Lutz D. Schmadel (ed.), *Dictionary of Minor Planets*, 5th edn, Berlin: Springer, 2007, p. 108.

82 Fortunato Devoto, 'Observations de la comète 1913 f (Delavan), faites à l'Observatoire de Paris (équatorial tour de l'Ouest de 0^m, 305 d'ouverture)', *Comptes rendus hebdomadaires des séances de l'Académie des sciences* (January–June 1915) 160, pp. 128–129.

83 'Argentine prelate honoured by France', *National Catholic Welfare Conference News Service* (18 September 1933) 33(2640), p. 23.

84 'Ciencia y fe', *F.V.D.* (September 1933) 13(149), pp. 357–358.

85 *Revista Eclesiástica del Arzobispado de Buenos Aires* (1918) 18, p. 809.

86 Devoto was also in charge of the *Revista Eclesiástica del Arzobispado de Buenos Aires* first published in 1898 and relaunched under his editorship in 1901.

Devoto ascended several echelons in the hierarchy of the archdiocese of Buenos Aires: Archbishop Espinosa named him canon (1920), and at his death in 1923 Devoto was appointed vicar general and afterwards delegate of the apostolic administrator Msgr Juan A. Boneo.[87] When the consecration of Fr José M. Bottaro (1926) solved the impasse between Rome and the government, Devoto again became vicar general. In 1927 he was made Bishop of Attea and auxiliary bishop of the archdiocese by Pius XI.[88]

An incidental remark by Devoto in the first issue of the review of the archbishopric of Buenos Aires that he himself edited throws some light on his view of the relationship between science and religion. Commenting upon the Fifth International Catholic Scientific Congress (Munich, 1900), Devoto claimed that 'it was necessary to instruct the Catholics in the procedures of the rigorous scientific method while vindicating them from the charge of dilettantism in the sciences'. He thought that this was the only way to show that the alleged 'incompatibility between the scientific spirit and the Catholic spirit' was unfounded.[89] His career would show that he took to heart his programme of neutralizing the conflict view by showing that Catholics could do serious and prestigious science.

Observatories

The National Observatory in Córdoba had been created in the 1870s by President Domingo F. Sarmiento and put in the charge of American astronomers.[90] From 1909, it was headed by Charles D. Perrine, who despite many efforts had not been able to configure the mirror for the sixty-inch reflector he was supposed to install. By the beginning of the 1930s, the institution was in disarray and the mounting climate of chauvinistic nationalism blamed the situation on its American staff.[91] The government appointed two experts to investigate the issue, who reported that the observatory was 'a foreign mission in our territory' instead of 'the really national institution' it was meant to be.[92] One of the members of the commission was Félix Aguilar, a geodesic engineer graduated from La Plata at the time Devoto was director there, who, after studying in Europe, returned to take charge of that observatory (1916–1920). He held teaching positions in

87 'Nota al Exmo. Sr. Ministro de R. E. y Culto sobre nombramientos en la curia', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1923) 23, p. 379.

88 'Monseñor Dr. Fortunato J. Devoto: Nuevo Obispo Auxiliar de la Arquidiócesis', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1927) 27, p. 711; 'Sagrada Congregación Consistorial: S. E. Revma. Mons. Dr. Fortunato J. Devoto, Obispo Auxiliar del Excmo. Sr. Arzobispo', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1933) 33, p. 345.

89 [Fortunato Devoto], 'El V Congreso Científico Internacional de Católicos', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1901) 1, pp. 49–55, 50.

90 John E. Hodge, 'Benjamin Apthorp Gould and the founding of the Argentine National Observatory', *The Americas* (1971) 28, pp. 152–175; Miguel de Asúa, 'Historia de la Astronomía en la Argentina', in Gustavo E. Romero, Sergio A. Cellone and Sofía Cora (eds.), *Historia de la Astronomía Argentina*, La Plata: Asociación Argentina de Astronomía, 2009, pp. 1–19.

91 John E. Hodge, 'Charles Dillon Perrine and the transformation of the Argentine National Observatory', *Journal of the History of Astronomy* (1977) 8, pp. 12–25.

92 Jorge Landi Dessy, 'Charles Dillon Perrine y el desarrollo de la astrofísica en la República Argentina', *Boletín de la Academia Nacional de Ciencias* (1970) 48, pp. 219–240, 235–239.

the major institutions of the army and was head of the geodesic division in the Military Geographical Institute, where Devoto was asked to head the astronomy division, which he declined (1925). In June 1933, Perrine's Córdoba observatory was put under the authority of a National Council for Observatories (hereinafter CNO, after its name in Spanish), created by law, with Devoto as its director and Aguilar as one of its members.[93] In turn, Aguilar presided over a newly created commission for the measurement of a segment of a meridian arc, in which Devoto participated.[94]

The creation of the CNO was seen as an important institutional advance and the Catholic press took the opportunity to promote the figure of the bishop astronomer.[95] The CNO was significant for two reasons. First, it supervised the handing over of the Córdoba observatory to an Argentine director, Enrique Gaviola, at that time the country's foremost physicist, who was able to finally supervise the shaping of the mirror for a new sixty-inch reflector in Pittsburgh (he had been responsible for theoretical and technical advances on mirror shaping, working with John D. Strong at Mount Wilson).[96] Later, Gaviola duly recognized Devoto's role in restructuring the observatory.[97] Second, the CNO, presided over by Devoto, founded the Jesuit Observatory of San Miguel, in the vicinity of Buenos Aires. This new institution was modelled upon the Jesuit Ebro Observatory (Catalonia); its first director was the Jesuit astronomer Ignacio Puig.[98] The new observatory would study the effects of solar and cosmic activity on the Earth. Originally, it would consist of three sections: geophysics, electro-meteorology and solar physics. Funding came from several corporations and individual donors, a novel scheme in the country.[99] This was underlined by Devoto in his lecture at the inauguration of the first building of the observatory in December 1935. In his brief intervention, he refers three times to the advantages of encouraging private individuals to establish scientific institutes, which 'could become official [institutions] as far as they are willing to be subordinate to the national authorities'.[100] The creation of San Miguel Observatory did not aim to establish a Catholic system of scientific research

93 *Boletín Oficial de la República Argentina* (June 1933) 41(11714), p. 741.

94 Félix Aguilar, 'La medicion de un arco de meridiano en la Republica Argentina', *Anales del Instituto Popular de Conferencias* (1937) 22, pp. 199–214; Congreso Nacional, *Diario de sesiones de la Cámara de Diputados. Año 1936*, 6 vols., Buenos Aires: Imprenta del Congreso Nacional, 1937, vol. 5, pp. 527–531. See Eduardo L. Ortiz, 'La Comisión del Arco de Meridiano: Astronomía, geodesia, oceanografía y geofísica en la Argentina de 1935–1945', *Saber y Tiempo* (2005) 19, pp. 127–187.

95 'S. E. R. Monseñor Fortunato Devoto fue nombrado presidente del Consejo Nacional de Observatorios', *El Pueblo*, 3 June 1933, p. 1; 'El progreso de la astronomía en la Argentina', *La Razón: Anuario 1934*, Buenos Aires: La Razón, 1934, p. 63.

96 Roscoe F. Sandford, 'The seventy-fifth anniversary of the Córdoba observatory', *Publications of the Astronomical Society of the Pacific* (1946) 58(345), pp. 341–348; Omar A. Bernaola, *Enrique Gaviola y el Observatorio Astronómico de Córdoba*, Buenos Aires: Saber y Tiempo, 2001.

97 'Nuevas autoridades en observatorios nacionales', *Revista Astronómica* (1956) 28, pp. 81–87, 85.

98 Agustín Udías SJ, *Searching the Heavens and the Earth: The History of Jesuit Observatories*, Dordrecht: Kluwer, 2003, pp. 142–145; Ignacio Puig SJ, *El Observatorio de San Miguel, República Argentina*, Buenos Aires, 1935.

99 'El país contará próximamente con otro observatorio', *La Nación*, 8 September 1934, p. 1.

100 'Con la asistencia del Gral. Justo inauguróse el Observatorio de Física Cósmica', *El Pueblo*, 13 December 1935, p. 1.

parallel to that of the government; it was instead an example of the principle of subsidiarity, of 'collaboration between the state and its subjects [*sic*]'. Devoto's speech evokes that of a civil servant vigilant regarding the prerogatives of the government. The final invocation to raise the hearts of the audience to the Redeemer of this world in memory of the 1934 International Eucharistic Congress which had taken place in Buenos Aires caps a discourse whose register sounds more civic than religious. Devoto and Aguilar were the embodiment of a scientific policy marked by state intervention, nationalism and collaborative relationships between the military and the church within a conservative but politically liberal order.

The rise of Catholic scientists

On the ground that Ángel Gallardo had decided to go on financing the building of the 'Argentine church' in Rome (Santa Maria Addolorata, originally supported by his brother Msgr José León Gallardo, who died in 1924), a radical student referred to him in the magazine of the Buenos Aires Centre of Medical Students as 'the illustrious biologist who believes in God, the manufacturer of Adam and Eve'.[101] The irony, predicated on the assumption that any reader would endorse the conflict thesis, suggests that a large segment of educated public opinion saw science as an essentially anti-religious pursuit. In an article published in 1910, the Catholic social leader Emilio Lamarca merged in a single contentious argument spontaneous generation, Haeckel's evolutionism and Rousseau's social contract.[102] For him, as for Argentine Catholic social thinkers in the last two decades of the nineteenth century, evolution and science in general were part of the liberal and socialist onslaught on Christianity.[103] The letter to Father Devoto of a conservative Catholic activist blaming the CER for teaching young ladies too much Plato instead of instructing them against 'transformist geology' and 'transformist anthropology' is also an expression of this mentality of a church besieged by the spread of evolutionary ideas.[104] Science had been one of the main instruments in secularizing public discourse and positivists sought to resignify religious symbols and rituals into a secular cult of science, whose founding cultural hero was Ameghino.[105] Also, the popularization of science was at the core of the socialist programmes for workers' education. Biological evolution, the materialist conception of life and the origin of the universe were staple subjects.[106] Astronomy was a favourite

101 Edgardo Casella, 'Nuestros "hombres de ciencia"', *Revista del Círculo Médico Argentino y Centro de Estudiantes de Medicina* (1927) 27, p. 230.

102 Emilio Lamarca, 'Necesidad de la acción social', *Revista Eclesiástica del Arzobispado de Buenos Aires* (1910) 10, pp. 3–30.

103 For these authors see the second section of this paper.

104 Fortunato Devoto, 'A "Patria y Hogar". En defensa del Centro de Estudios Religiosos', *Ichtys* (1923) 2(25), pp. 343–346.

105 Asúa, op. cit. (12); Sociedad Luz, *Ameghino: Homenaje de la Sociedad Luz en el XXV aniversario de su muerte. 1911–Agosto 6-1936*, Buenos Aires: Federación Gráfica Bonaerense, 1936; Irina Podgorny and Máximo Farro, 'Frente a la tumba del sabio', *Ciencia Hoy* (1998) 8(47), pp. 28–37.

106 As can be seen in the papers published in the socialist magazine *La Universidad Popular* between 1905 and 1907.

subject in this agenda. The inaugural lecture of Sociedad Luz, a nascent socialist cultural centre, was on 'The planetary system and the Earth' – delivered in June 1899 by the engineer student Maurice Klimann, it was hampered neither by the heavy Russian accent of the lecturer nor by the asphyxiating smoke generated by the kerosene lamp of the magic lantern he used.[107] Between 1912 and 1913 the socialist French physicist and mathematician Camille Meyer, who introduced Planck's quantum theory to the country, gave a series of lectures on the universe published in a fine volume of three hundred pages.[108]

During the second and third decades of the twentieth century, the Argentine Jesuit journal *Estudios* launched an anti-evolutionistic campaign analogous to the crusade *La Civiltà Cattolica* had developed earlier in Italy.[109] The journal systematically published articles by Spanish Jesuits: Jaime Pujiula of the Ebro Biological Laboratory, the astronomer José Ubach (originally from the Ebro Observatory and later established in Buenos Aires) and José María Blanco, also living in Buenos Aires (incidentally, he had published an article against De Andrea, which prompted Gallardo to request his expulsion from Argentina).[110] Fathers Blanco and Ubach taught in the Jesuit secondary school Colegio del Salvador and in the metropolitan seminary. Blanco, a serious amateur of physical anthropology, had exposed the forgery of prehistoric tools and human bones to support Ameghino's theories of the Tertiary origin of the human being in Río de la Plata – a local and contemporary version of the British 1912 'Piltdown Man' (it should be recalled that Gallardo had had no qualms about accepting it).[111] Ubach had contributed papers on the observation of eclipses and transits of Mercury and also wrote an informed critique of the theory of relativity, which he declared unsound.[112] Although the scientific activity of the Iberian Jesuits was far from negligible, it was considered by contemporary standards to be backward and defensive. It is against this somewhat dull backdrop that the full extent of the novelty of Gallardo and Devoto should be measured. Both had faultless scientific credentials and a solid French training;

107 Ángel Giménez, *Páginas de historia del movimiento social en la República Argentina*, Buenos Aires: Imprenta La Vanguardia, 1927, pp. 66–68. Cf. Dora Barrancos, *La escena iluminada: Ciencias para trabajadores (1890–1930)*, Buenos Aires: Plus Ultra, 1996.

108 Camilo Meyer, *Conferencias de astronomía popular dadas en 1912 y 1913*, Buenos Aires: Kidd, 1916; Carlos Galles, 'La obra de Camilo Meyer por la cultura científica argentina', in Miguel de Asúa (ed.), *La ciencia en la Argentina: Perspectivas históricas*, Buenos Aires: CEAL, 1993, pp. 134–144.

109 Mariano Artigas, Thomas F. Glick and Rafael A. Martínez, *Negotiating Darwin: The Vatican Confronts Evolution, 1877–1902*, Baltimore: Johns Hopkins University Press, 2006.

110 J. Peretó and J.I. Català, 'A reconciliation with Darwin. Erich Wasmann and Jaime Pujiula's divergent views on evolutionism: biologists and Jesuits', *Mètode: Science Studies Journal* (2017) 7, pp. 87–93; Miguel de Asúa, 'Los artículos del P. José María Blanco S.I. en la revista *Estudios* sobre la evolución y las teorías antropológicas de Ameghino', *Stromata* (2009) 65, pp. 313–335; Gallardo, op. cit. (30), pp. 61–62.

111 Carolyne R. Larson, '"Argentine man": human evolution and cultural citizenship in Argentina, 1911–1940', in B. Bryce and D.M. Sheinin (eds.), *Making Citizens in Argentina*, Pittsburgh: University of Pittsburgh Press, 2017, pp. 43–61.

112 'R.P. José Ubach Medir S.J.', *Revista Astronómica* (1935) 7, p. 337; José Ubach SJ, *La teoría de la relatividad en la física moderna: Lorentz, Minkowski, Einstein*, Buenos Aires: Amorrortu, 1920; Miguel de Asúa and Diego Hurtado de Mendoza, *Imágenes de Einstein: Relatividad y cultura en el mundo y en la Argentina*, Buenos Aires: Eudeba, 2006, pp. 184–190.

they had conducted locally prestigious scientific institutions and by the end of their careers had joined the highest circles of political power and shaped the development of science in their country. By the early 1930s, those who took Catholic scientists as a joke did so at their own risk. Among the science textbooks recommended by an official commission named by the government in 1927 were Gallardo's *Zoology*, Eduardo Holmberg's *Botany* and a manual of cosmography by Eduardo Brugier, a Chilean Jesuit.[113] When, in the course of parliamentary debate on the issue, someone objected to Gallardo's textbook, the socialist deputy and physician Enrique Dickmann replied that, although he disagreed with Gallardo in political matters, he felt compelled to testify that his book was 'an excellent text long in use in state schools … [written by] an expert on the matter'.[114]

Science, religion and patterns of secularization

Historians of science working on science and religion have long argued that science was not the engine of secularization. Their work amounts to a consistent body of historical research and analysis, which I can only hint at here. John H. Brooke has particularly called attention to the 'ironic pattern' of deism as a result of Christian culture and natural theology.[115] Ronald Numbers has focused the question on the American contemporary scene.[116] Peter Harrison has qualified these views, affirming that while secularization was not a consequence of the confrontation between science and religion, it was nevertheless 'an indirect result of the conditions of belief that attended the success of modern science'.[117] These approaches tend to concentrate on the rise of modern science, the contrasting fortunes of Newtonian Enlightenment in England and France, and the persistence of natural theology in Protestant societies; when it comes to secularization in the nineteenth century, they are mostly concerned with the Anglo-Saxon pattern. As shown by the work of Harry Paul, the question of science and religion gains some added complexity when viewed from the viewpoint of what happened during the Third Republic in France, the model of the Latin pattern of secularization.[118]

But in Latin America this pattern seems to involve the following aspects: (a) contrary to the many-valued logic of Protestant pluralism, the two-valued logic of the Latin

113 Eduardo Brugier SJ, *Elementos de cosmografía*, 7th edn, Buenos Aires: Estrada, 1933; Congreso Nacional, *Diario de Sesiones de la Cámara de Diputados: Año 1927*, 6 vols., Buenos Aires: Imprenta y Encuadernadora de la Cámara de Diputados, 1927, vol. 2, p. 35. Despite being an actualized compendium, Brugier's text mentions the three 'systems of the universe' (Ptolemaic, Tychonic and Copernican) in the long-established tradition of eighteenth-century Jesuit commentaries of natural philosophy. See pp. 86–87.

114 Congreso Nacional, op. cit. (113), vol. 2, p. 29.

115 John H. Brooke, 'Science and the secularization of knowledge: perspectives on some eighteenth-century transformations', *Nuncius* (1989) 4(1), pp. 43–65; Brooke, 'Science and secularization', in Peter Harrison (ed.), *The Cambridge Companion to Science and Religion*, Cambridge: Cambridge University Press, 2010, pp. 103–123.

116 Ronald L. Numbers, 'Science, secularization, and privatization', in Numbers, *Science and Christianity in Pulpit and Pew*, New York: Oxford University Press, 2007, pp. 129–136.

117 Peter Harrison, 'Science and secularization', *Intellectual History Review* (2017) 27(1), pp. 47–70, 56.

118 Paul, op. cit. (54).

pattern (Catholic or non-Catholic) leads to a neater division of the scientific community into a secular majority and a small confessional minority; (b) secularism is at first a top-to-bottom affair, promoted by the same elites who also foster science as an ingredient of the ideology of progress; (c) not infrequently, the particular kind of relationship between state and church (which varies in different countries and evolves with time) modulates the interactions between science and religion. These factors are manifest in the case under study, which focuses on an inflection point in the course of the relationships between science and religion in Argentina. Science and scientific imagery were certainly a main component in the self-fulfilling prophecies of the secularizing discourse of the liberal elite of the 1880s and later of socialism. We have taken a close look at the moment at which the secularistic monopoly of science was broken by the arrival upon the stage of scientists with strong confessional commitments. This coincided with the first inklings of the local Catholic renaissance and the shift from a model of a moderately 'Gallican' church to another closer to integral Catholicism (Gallardo and Devoto could be seen as transitional characters in this respect). This process was not unrelated to the resurgence of different stripes of nationalism. In the 1930s and 1940s, a growing number of Catholic scientists branched into two groups: some favoured political authoritarian regimes and neo-Thomist philosophy, while the others defended democratic liberal democracies and were less preoccupied about questions of doctrinal orthodoxy (the latter were among the best Argentine science was able to offer in the years after the Second World War).[119]

The irruption of scientists identified with the majority church of the country, as examined in this article, again refutes any simplistic interpretation of science as an agent of secularization. What was crucial for the transactions between science and religion was the rise and fall of science-saturated ideologies legitimizing secularist agendas tied to local politics. Ascribing science any kind of 'causal' role in this process would be taking the effect for the cause. Conversely, it is the particular type of dynamic of secularization which seems to have modulated and even shaped the kind of relationships between science and religion that obtained in this society.

119 Miguel de Asúa, 'Science and integral Catholicism in interwar Argentina', *Church History and Religious Culture* (2019) 99, pp. 405–503; Asúa, 'Argentine Catholic democratic scientists and their projects for a research university (1932–59)', *Catholic Historical Review* (2020) 106(1), pp. 124–149.