

All Over but the Shouting: Darwin, Freud, and Einstein in Spain, 1868–1950

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WHEN JOSÉ ORTEGA Y GASSET OBSERVED that it was impossible to do science while shouting he was alluding to the notorious cleavage between the Spanish left and right, which had had the doleful effect of holding science hostage to the dictates of ideological warfare.¹ No doubt the immediate reference was the violent rhetorical war over Darwinism which had engaged the generation of Ortega's parents in the 1870s and 80s. But, in a broader context, shouting was endemic in Spanish intellectual life. And here Ortega might well have had in mind his experience of the German university as he knew it before World War I, where in spite of ideological differences among individual professors, the exuberant practice of science was a value that all shared. There was of course ample shouting over science in Germany, with vociferous debates between believers and materialists throughout the nineteenth century. However, the industrial development of the country and German industry's demand for scientific and technological education had the unintended effect of stripping away from German universities the last remnants of scholastic education. In Spain, by contrast, there had been no such development and the result was a university system that was largely unreformed.

The period 1860–1930, approximately, marked an unusual epoch in the history of western thought, when scientific ideas seemed to engage entire societies at both learned and popular levels of discourse. Why this should have been so is a complex question, but clearly it has to do with the intersection of specific long-term processes such as secularization, literacy, and the development of mass media, all of which sped up during the period considered, together with socially dislocating phenomena such as the weakening of the traditional family, the rising pace of urbanization, and the generalized perception of a world in crisis, heightened by World War I, the Russian Revolution, and the proliferation of new forms of cultural expression all of which worked against traditional sources of authority and to enhance, for a time, science's appeal as the final arbiter of truth. The fact that evolution, psychoanalysis, and relativity should all have appeared on

stock lists of modern horrors that cultural conservatives churned out—along with cubism, socialism, Stravinsky, and modern Biblical criticism (“modernism”)—identifies the ideological charge that these ideas carried. Moreover, Freud and Einstein—whose ideas were received at the same time—were both perceived as bearing the same message: that things are not as they seem. That, in itself, was an unsettling notion.

Perhaps we know better today or perhaps in a jaded, or just dumbed-down, world, the Big Bang and Genome, ideas as important as any that have gone before, do not excite the same interest not engage masses of people in the same wise as did the three ideas—strong paradigms all—considered here.

The Origin of Species broke upon a scientific world that had been prepared by a half century of, first, debate, and then, when that was shut down in the wake of Cuvier’s apparent triumph over transformism, the patient amassing of data on adaptation. So when Darwin finally presented his theory in 1859, there was scarcely a murmur of dissent from English men of science. Cultural and social controls, in the form of religious orthodoxy, proved more intractable among lay opinion. Freud unveiled his theory of mind at a time when psychiatrists and neurologists despaired of somatic therapy and the model of the mind underlying it. Among laymen, particularly those who had suffered from the War and its attendant social dislocations or who, in the wake of the “demapping” of traditional family relations, sought a guide to reconstituting a map of interpersonal relations, Freud’s message (and, particularly, his method) were welcomed. Those who opposed Freud did so for much the same reasons—ostensibly—that their parents had opposed Darwin. Both had denied the special status of humanity in the animal kingdom. Einstein’s reshaping of Newton and Galileo explained an obvious set of anomalies to those physicists, mathematicians, and astronomers who understood what the game was about. That Einstein could unravel the secrets of the cosmos with his unaided mind while at the same time opposing the War and championing the oppressed, was more than enough to establish and confirm his mythical status among broad segments of the non-scientific public.

Here I want to comment on what was interesting, significant, or unusual about the way in which these three compelling sets of ideas were received in Spain, a country that had not distinguished itself in science between the Napoleonic invasion which put an end to high-performance Enlightenment institutions and the awarding of the Nobel prize to Santiago Ramón y Cajal for the neuron theory in 1906 (which stimulated the creation of modern scientific institutions) and where, in any case, science did not rank high on anyone’s list of national aptitudes, much less priorities.

Before discussing each case in turn, let me make a number of generalizations that apply to all three. First, they were received in a political climate characterized first by a lack of civil discourse—defined as the ability

to discuss ideas on their own merits without making them weapons in ideological warfare—and later—in the first three decades of the century—by a heightened level of civil discourse which then began to break down in the prelude to the Spanish Civil War.²

Second, the Spanish scientific community was by today's standards a tiny one: no more than 300 or so at any one time (many fewer, if one insists on a high level of original research to qualify). These individuals all knew one another, promoting intense interaction across disciplinary boundaries whose result was the high conductivity of scientific ideas. Other such epiphenomena of smallness add to the idiosyncrasies of Spanish science: for example, disciplinary groups were small and tended to be dominated by one or two figures; and the range of responses to new paradigms was narrow (because they were channeled through those same individuals).³ These characteristics colored the receptions of the three paradigms, where a few well-placed scientists determined the tenor of reception across the whole of Spanish society.

In general, we are not talking about original research, but rather about good teachers who received new ideas and transmitted them to their students or the general public. An emblematic Darwinian was Peregrin Casanova (1849–1919), professor of anatomy at the University of Valencia. A freethinker, he was a devotee of Ernst Haeckel to whom he wrote seeking a blessing for his phylogenetic approach to teaching comparative anatomy to medical students. He did no original research, but introduced generations of Valencian physicians to a Darwinian worldview that informed the Republican politics of so many of them.⁴

An emblematic Freudian was José Sanchís Banús (1893–1932), a Valencia-born psychiatrist who taught in Madrid. He wrote clinical histories from a Freudian perspective and reported that the vast majority of his psychoneurotic patients presented sexual dysfunctions of one kind or another. His claim to have practiced psychoanalysis must be taken with skepticism because he was famous for his ability to treat dozens of patients daily. Elected as a socialist deputy to the Constituent Cortes of the Second Republic, he delivered a powerful speech in favor of the divorce statute, based on the notion that good citizenship depends on a successful Oedipal transition.⁵

An emblematic relativist was the Catalan Jesuit, Enric de Rafael (1885–1955) who taught relativity to an entire generation of Catholic engineers at the Instituto Católico de Artes e Industria in Madrid. At the ICAI, he taught the first university-level course on relativity in Spain. He was passionate in his defense of Einstein, scathing in his critiques of those who were unable to relinquish the outdated mechanics that required an imponderable aether, and was in every other respect an extremely pious, conservative Catholic. His roommate in graduate school was Esteve Terradas, Catalan engineer, with whom de Rafael said the rosary daily. Terradas was the first Spaniard to comment in writing on Special Relativity.⁶

So we have a Darwinian who does no research but instills a Darwinian worldview in hundreds of physicians; a Freudian who is not a psychoanalyst, but a politically active psychiatrist and crusader for sexual reform; and a relativist who, speaking as an arch-conservative Catholic, tells the faithful that it is folly not to embrace the new physics.

Darwinism

A comparison with Latin America is useful. There, Darwinism was inextricably linked to positivism, positivism of the Spencerian variety, which succeeded the Comtean version in all countries where the latter had been prominent (Mexico and even Brazil where Comteanism held on as a fringe movement into the 1920s). European positivism had been “sold” as a kind of seal to the achievements of the Scientific Revolution and Enlightenment; a rhetoric of science more than a philosophy, which provided a vocabulary for arguing the primacy of science’s authority. But positivism arrived in Latin America where science had never been firmly rooted and so it was programmatic. Darwinism was part of the program. Spencerians were Darwinians ipso facto. It was part of their ideological baggage. Moreover, in Latin America, positivism was a political label; there were explicitly positivist politicians and even positivist dictators (Lorenzo Latorre in Uruguay, Cipriano Castro in Venezuela, Rafael Núñez in Colombia), all of them Darwinists.

This never happened in Spain. There the Republican opposition to the monarchy was never overtly positivist. Early on, they were to a degree Krausist and the Darwinians of the *Institución Libre de Enseñanza* (Augusto González Linares, Enrique Serrano Fatigati) have been described as “Krauso-positivists”. But they were positivists only because they were Darwinians. The notion of a positivist dictator in Spain is unthinkable. Miguel Primo de Rivera was a modernizing dictator; but he entrusted the educational system to obscurantist Jesuits.

So when one confronts the absolute ideological polarization of left and right with regard to Darwin, positivism per se was not an issue. The most substantive issue informing the ideological cleavage was academic freedom (*libertad de cátedra*) and that was resolved in 1890s when an unlikely coalition of Republicans and Neo-Thomists (both groups feared being swamped by officialist ideological positions) were able, through the education ministries of García Alix (conservative) and Romanones (liberal), to instate academic freedom.

The receptions of Freudian psychology and relativity benefited from this new climate. Darwinism remained a problem because of the Vatican’s official opposition, but its normalization in medical schools and in the museums was not impeded. Catholic opposition passed, in the early decades of twentieth century, from political and cultural conservatives like prime

minister Antonio Cánovas de Castillo, the neo-Catholic deputy Joaquín Sánchez de Toca, and the novelist Emilia Pardo Bazán, all of whom had campaigned against Darwinism in the 1880s, to Jesuit die-hards like Jaime Pujiula, only to be replaced in the very next generation by Teilhardian Darwinians. In the universities, Darwinism was normalized, but quietly. Professors of medicine tended to be more outspoken, possibly because they enjoyed the political support of the legions of their graduates. Before the Civil War medical doctors tended to be liberal and republican.

Individuals in faculties of sciences had to be more discreet.

In the nineteenth century there had been several highly publicized cases of open Church censorship of Darwinians: Chil y Naranjo by Urquinaona; García y Alvarez by the bishop of Granada; and Odón de Buen. After 1900, there was only one such case, in Huesca in 1909.⁷ But Darwinism remained a potent ideological symbol. The very motto of the Spanish anarchists, Solidaridad!, is an evolutionary trope derived from Kropotkin's doctrine of mutual aid: groups displaying a higher level of social solidarity will be favored in the struggle for existence against those less so endowed (Darwin says the same in *The Descent of Man*).

Psychoanalysis

The core group that received Freudian psychology and lent it instant legitimation because of their prestige were Cajal's disciples. They preferred fact to theory and found Freud's approach congenial in a number of ways: it was a psychology based on solid data, even though it appeared subjective and suspect to Cajal himself. But his disciples lived in a very different world, when classical causality had been cast into doubt and older notions of the boundary between the objective and the subject had dissolved. Freud's theory was biogenetic and its core was nothing less than Haeckel's biogenetic law, which all evolutionary biologists of Cajal's generation believed to be true. So, Cajal's disciples had no difficulty whatever in perceiving Freudian theory as fully consistent with the prevailing norms of evolutionary biology. Finally, Freud's approach lent itself to the kind of typologizing so attractive to psychiatrists and neurologists educated under the norms of Darwinian and positivist science.

In Spain Freudian psychology was perceived as biology. So in his *Manual of General Pathology*, Roberto Nóvoa Santos included a detailed account of the sexual etiology of neurosis, and the endocrinologist Gregorio Marañón, while protesting vigorously that he was no Freudian, was universally perceived as one because of his insistence on the centrality of libido in the human emotional economy.

The Freudian consensus was very broad extending from the anarchist left, embracing the entire center, and moderate Catholic conservatives

like the novelist Wenceslao Fernández Flores. Some Catholics friendly to Freud distinguished the doctrine of the unconscious from what they called “pansexualism” while for others pansexualism was the basis for rejecting the entire package. Even on the far right, Freud’s Jewish ethnicity was not much remarked, nor did his religious writings seem to attract attention. Here anti-Freudians were led by the opinion of conservative physicians.

At the same time it is possible to detect unintended consequences of the debate over Freud’s ideas that I have called “the Freudianism of non-Freudians.” Thus the importance of unconscious the willingness of all parties to concerned the importance of sexual factors in emotional life (one proof of this contention was the spate of “psychoanalytic” interpretations of Don Juan that Freudian discourse stimulated, with Marañón in the lead), and—in common with all western societies where Freud was read—a revolution in the way clinical histories were taken.

Relativity

That Einstein had cast his notions of time and space in direct contrast to Kant’s mental constructions of absolute time and space was a powerful attraction to Catholics who had opposed Kant’s philosophical and theological modernism, opposition to which had been a keystone of the neo-Thomist program. Catholic physicists and mathematicians, moreover, tired of having been cast as the heavies in Spain’s inability to come to grips with modern science in its Darwinian form, were eager to welcome a modern theory that had no obvious theological connotations and which, to boot, sounded the death knell of the despised Kant.

The arena of civil discourse in science expanded spectacularly in the Spanish reception of relativity. It was taught in Catholic schools and praised by scientifically educated clergy. Dissent was restricted to the far right where revanchist Catholics believed that Einstein, when he rejected *absolute* time and space, had rejected *real* time and space. Interestingly, virtually all of the press across the entire ideological spectrum identified Einstein as a German scientist—*el gran sabio teutón!* Only in fringe papers of the right like the Carlist *El Siglo Futuro* was there a hint of anti-Semitism.

The Reception of our three ideas was sharply structured by disciplinary cultures. In the case of Darwin, there was no strong antecedent biological tradition to impede naturalists looking at the facts. Geology was both stronger and had more entrenched Biblical presuppositions, and thus more resistance. Juan Vilanova y Piera hung on the latest word from Paris, where Armand de Quatrefages, an anti-evolutionist, was repeatedly obliged to extend the period of human life on earth into ever more remote geological periods. In forestry, there was an ecological model in place.

In the case of Psychoanalysis, somatic psychiatry was in crisis here as everywhere else. That is why arch conservatives like José María Villaverde found a method they liked. Yet it is doubtful that such a person could have overcome the strict decorum that was still in place for upper class physicians. The socialist José Sánchis Banus would not have had that problem, nor the republican sexual reformist César Juarros.

In Germany, England, the United States and elsewhere relativity was opposed by physicists in the Maxwellian tradition of electrodynamics which required that energy be propagated through a medium (a requirement satisfied by the infamous aether that Einstein dispensed with). But in Spain there was no Maxwellian tradition; what little opposition offered by physical scientists came from even older traditions, such as Newtonian compounding of velocities espoused by the astronomer Josep Comas i Solà.

It was a characteristic of the "Generation of 1914" to use new ideas to discredit the older, failed generations. Both anarchists and Mussolini, for example, found good things to say about relativity because it showed that the older generation had even gotten basic physics wrong. Spanish relativists, conservatives not given to rebellion, did not buy into this line. Ortega, who named the Generation of 1914, had views similar to those of moderate Catholics, although his reasoning was different. He rejected evolution because he had fallen under the influence of the German biologist Jacob von Uexküll, whose neo-romantic interpretation of ecology did not allow a basic role for competition. He championed Freud as a kind of necessary Europeanizing leaven for the constricted social horizon of Spanish culture, but rejected the theory (in a famous, cryptic epigram of 1911, when he concluded that psychoanalysis consisted in a number of doctrines which, "rather than false, [are] not true, but scientifically suggestive."⁸) During World War I he made the contacts that produced the first edition of Freud's complete works in any language, the first volume appearing in 1922. And he was an ardent relativist. He liked the analogy between the special theory's conclusions regarding the independence of different frames of reference and his own theory of perspectivism. And Einstein's independent political stance, flaunting of convention, while still bolstering Ortega's socio-political elitism (of necessity, because general relativity was only accessible to an elite in-group) was akin to Ortega's own.

Civil Discourse

The epoch of civil discourse in science that extended from around 1900 to the 1930s raises the issue of ideological polarization in twentieth century Spain as a historiographical issue. There have been only a handful studies on ideological pluralism because the historiographical tradition of the sec-

ond half of the century forged in the Civil War and its aftermath presumed that no such pluralism ever existed.

In her pioneering study of the liberal intelligentsia in the Cortes of the Second Republic María Dolores Gómez Molleda notes that the substantial contingent of professionals (doctors, lawyers, scientists, and professors of one kind or another) who served as deputies acted collectively, “whatever their political affiliation might have been, as an intermediate sector, mediating between the radicalisms of the left, above all in ideological terrain. This is a clear aspect in my research,” she continues, “little considered by historians who have been inclined to study the phenomenon of left-right polarization in the Republican Cortes.”⁹

Although my own approach has been to gauge ideological pluralism through the prism of the reception of scientific ideas, the argument can be easily extended to institutions where ideological pluralism can be detected. I will mention three, two of which were scientific in nature. The first is the Junta para la Ampliación de Estudios founded in 1907 under the stimulus of the award of the Nobel Prize to Ramon y Cajal. The Junta was self-consciously established, according to its charter, as an island “located beyond the gravitational pull of political passions.”¹⁰ The twenty-one members of the Directorate, a deliberative governing body that acted under a rule of unanimity, agreed to eschew ideological debate in the interest of promoting science. The ideological diversity of the early boards can be appreciated from differing stands of members with regard to Darwinism. Five outspoken evolutionists, Cajal, José Rodríguez Carracido, Amalio Gimeno, and Luis Simarro, and Domingo Orueta served alongside the neo-Catholic politician Joaquín Sánchez de Toca, who had attacked Darwinism from a social perspective. A second pluri-ideological scientific institution was the Spanish Association for the Progress of Science, founded in 1908 at a meeting chaired by the liberal prime minister Segismundo Moret to stimulate “intellectual communication” throughout the nation, according to its statutes. In his presidential address at the Association’s first national meeting Moret mentioned in passing that Darwin’s *Origin of Species* had “transformed all of zoology,” at the same time as he deflected Father Vitoria’s motion to amend the statutes to prohibit any presentation offensive to Catholicism. Moret agreed that the cleric’s sentiment should be accepted informally. Although the Association was modeled after its British prototype, there weren’t enough research scientists in Spain, even for such a broadly conceived organization. So most of the three hundred members were drawn from a group that I have called the “scientific middle class,” medical doctors, pharmacists, and engineers with some scientific education and who wanted promote an environment favorable to the growth of science and the diffusion of the scientific ethos. Moret, incidentally, was a key player in the pursuit of civil discourse in science through his activities

at the Ateneo of Madrid where in 1896 he inaugurated the Ateneo's School of Advanced Studies that featured courses in science open to the public and given by outstanding figures such as Ramón y Cajal and mathematician José de Echegaray. Echegaray's courses drew substantial audiences in spite of the abstruse nature of the subject matter, an indication of the growing social prestige of science (Sánchez Ron 69–71).¹¹ His rhetorical and dramaturgical skills made Echegaray a masterful popularizer of science.

The third institution is the Instituto Nacional de Previsión, a kind of social security administration also established in 1908. Its administrative structure was similar to the of the Junta; the governing council was to act collegially through a "kind of basic common sense," and its charter precluded any ideological test for the selection of members.¹² Thirteen members of the board were also members of the Spanish Association for the Progress of Science and four were members of the Junta. The board contained socialists, social Catholics, and liberals in the orbit of the Institución Libre de Enseñanza, and apolitical technocrats. So what emerges here is a picture of a kind of interlocking directorate of transactionist intellectual and professionals who have agreed to put aside their political differences in the shared project of modernizing the country.

The behavior of such persons and their marked participation in civil discourse at a number of different levels, can be taken as an index of unification of elites, a process aborted by the Civil War.

As a result of the García Alix/Romanones pact, science was exempted from ideological debate for approximately the period 1900 to sometime in the mid-1930s when, under the strains of acute political polarization, the pact broke down. The right's reaction to Einstein is the bellwether. The conservative rector of the University of Zaragoza, the physician Ricardo Royo y Villanueva (brother of the arch-conservative deputy), who held welcomed Einstein effusively in 1923, denounced him in the 1930s. During the war Marañón, in a scurrilous passage in *Raíz y decoro de España* did likewise.

The Franco regime converted the Junta into the CSIC which it instilled with a radically different ethos: the restoration of the "Catholic unity of science" that the Enlightenment had destroyed. The CISC's logo is the Lullian *Arbor scientiae*, a graphic representation of the *Ars magna* designed to convert infidels.

In the aftermath of the Civil War, Freud was discarded in favor of second-line German psychiatrists like Oswald Bumke recommended by Spain's German mentors. Julio Palacios was able to discredit the theory of relativity among an entire generation of physicists trained in Spain in the 1940s and 50s. Yet in his 1932 discourse of reception in the Academy of Sciences on the uncertainty principle, he had had no problem dissociating physical uncertainty and the kind uncertainty that authoritarian Catholics

disliked. Palacios, who taught the relativity course in Madrid, told his students to ask for their money back because—he said—Einstein was wrong. With the exile or suppression of the modernizing professors, there was tremendous latitude in the Franco university system for any kind of weird idea to gain credence.

Darwin fared somewhat better, part because Pius XII had in his encyclical *Humani Generis* (1950) had declared the Church with respect to evolutionary theory, so long as latitude was left for the “insufflation” of man’s soul by God. In the immediate aftermath of *Humani Generis*, the Catalan paleontologist began an active program of unapologetic evolutionary paleontology, partly under the cloak provided by the popularity of the Jesuit paleontologist Pierre Teilhard de Chardin, an outspoken evolutionist. (Glick, “Miquel Crusafont” II: 553–568). The wave of industrialization and economic take-off that began around 1960 inevitably set in motion the processes that cleared away the remnants of scholasticism from the universities and normalized the role of science in Spanish society as it had in the other countries of the west. At the same time, the unification of elites that permitted so smooth a transition to democracy ushered in a new era of civil discourse in which it is highly unlikely that the Spanish elite would renew a shouting match over scientific ideas.

Notes

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- 1 “Quisiera gritar lo menos posible. Decía Leonardo de Vinci que *dove si grida non è vera scienza, donde se grita no hay buen conocimiento*” (Ortega, *Obras* [Taurus] I: 710). I am indebted to Javier Krauel for this reference.
- 2 On civil discourse, see Field and Higley’s *Elitism*; Glick, (“Ciencia, política y discurso civil en la España de Alfonso XIII). Cf. Alvin Gouldner’s conception of a “culture of critical discourse” which “premises a sphere of autonomy in which speech and action are rule-oriented rather than causally controlled by external force; where conclusions are reflectively selected and constructed in the light of certain rules, rather than being imposed by force, tradition, impulse, or the imperative ‘laws of science’ ” (34; qtd. in Buckley 19 n. 56).
- 3 See my article, “Les dimensions comparatives en la història de les ciències” (68).
- 4 On Casanova, see my chapter “Spain” in *The Comparative Reception of Darwinism* (314–15).
- 5 On Sanchis Banús see, Glick, “The Naked Science: Psychoanalysis in Spain, 1914–1948” (543–544, 549); and “Sexual Reform, Psychoanalysis, and the Politics of Divorce in Spain in the 1920s and 1930s.”
- 6 On Enric de Rafael, see Glick, *Einstein in Spain* (171–73).
- 7 See my chapter “Spain,” in *The Comparative Reception of Darwinism*.
- 8 “más que falsas, no verdaderas, pero científicamente sugestivas” (Ortega, *Obras* [Revista de Occidente] I: 218).
- 9 “La inteligencia de izquierda en las constituyentes republicanas y su intento de transacción ideológica” (22).
- 10 “colocada fuera de la gravitación de las pasiones políticas” (qtd. in Sánchez Ron 10).
- 11 In addition, Moret was president of the Ateneo in 1884–86 and 1899–1913.
- 12 See Mercedes Samaniego Boneu, *La elite dirigente del Instituto Nacional de Previsión*.

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