



---

## RESEÑAS / BOOK REVIEWS

---

**Nieto-Galan, Agustí.** *Los públicos de la ciencia. Expertos y profanos a través de la historia.* Madrid: Marcial Pons, 2011, 407 páginas [ISBN 9788492820498]

**Copyright:** © 2014 CSIC. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial (by-nc) Spain 3.0 License.

It is no secret anymore: the popularization of science cannot be understood as simply divulging some boiled down content to an ignorant public. Since at least the mid-1980s scholars from the history of science but also from neighboring fields such as the sociology of science and science studies have shown that this so-called “top-down-model” (or “deficit-model”) is inadequate and even an ideological construct in itself in order to strengthen the cultural authority of science. Initially, these arguments were mainly put forward by Anglo-American scholars. Numerous studies from the Spanish-speaking world over the past ten or fifteen years have complemented and enriched this line of investigation. Yet as far as I can see there have been only very few attempts to synthesize the sheer mass of case studies on the history of science popularization that have been published in the last two or three decades.

Agustí Nieto-Galan’s *Los públicos de la ciencia* is therefore most welcome. This book is an excellent synthesis of recent scholarship on the complex and changing relationship between science and its publics. In fact, it deals not only with the natural sciences but also – although to a smaller extent – with medicine and technology, following the model proposed by John Pickstone. The question is, of course, how to organize the vast material, the hundreds (probably thousands) of existing cases studies and the innumerable actors. The author opted – the correct decision in my view – for a thematic order rather than a chronological one. The book is not structured entirely symmetrical in the sense that some of the seven chapters are organized around genres or media of popularization such as “la ciencia impresa” (ch. 1) or “la ciencia espectáculo” (ch. 2) or spaces such as “la ciencia en las aulas” (ch. 4). Other chapters deal with a specific type of (popular) science such heterodox science (ch. 3), with the relationship between science and technology (ch. 5), or with “la ciencia mediática”, the in-

creasing importance of the mass media in the history of science popularization (ch. 6). The seventh and last chapter is entitled “la ciencia democrática” looking at the seemingly more participative role of the public in recent decades.

It is a rich book in every sense, full of short accounts of case studies interspersed with more general reflections. The author moves with admirable easiness within a huge time frame that ranges from the Renaissance to the present. We often conceive of the history of science popularization as something that begins in the Enlightenment or maybe even only in the nineteenth century. Yet as the author convincingly shows the anatomical theatre and the books of secrets of the sixteenth and seventeenth century to give but two examples surely can be analyzed in terms of how scholars communicate with specific audiences as well.

In tune with much of recent scholarship Nieto-Galan emphasizes the role of the “non-scientist” (my term, partially identical with the “profanos” in the subtitle of the book) in the making of natural knowledge. He mentions instrument makers and technicians, scientific showmen, amateurs of different breeds (collectors, observers, inventors), science mediators and science journalists, teachers, curators, artists, writers, midwives and many more.

Another forte of the book is that its examples are drawn from different countries (and hence different scientific cultures), mainly Great Britain, France and Spain but also from Germany, the US, Italy and so on. This panoramic view makes for a particularly rewarding reading and strengthens the argument of the book. In that sense *Los públicos de la ciencia* attempts to overcome the shortcomings of recent works published in English dealing only with – because it seems to be the classic case for the history of science popularization – Victorian Britain.<sup>1</sup>

It is often said that a good synthesis is always more than just the sum of its parts. Due to the historical depth, spatial breadth and the wealth of actors involved in Nieto-Galan's analysis many underlying themes emerge. In what follows I will try to identify the most important ones.

### 1. Popularization as business

To begin with a seemingly mundane aspect: money. Science popularization has always been, albeit in different ways, a business. Popular science books that made authors and publishers rich are but one example. Just to name one mega-bestseller for each century: Fontenelle's *Entretiens sur la pluralité des mondes* (1687), the Abbé Pluche's *Spectacle de la nature* (1732-1750), Robert Chamber's *Vestiges of the Natural History of Creation* (1844) and Stephen Hawking's *A brief history of time* (1988) with its numerous editions and translations. Electrical showmen of the enlightenment, phrenologists in the early nineteenth century or the famous Victorian "performer" John Pepper with his optical illusions – they all tried to make a living by attracting large (and paying) audiences with their public talks and often "explosive" demonstrations. Museums, botanical gardens, zoos and more recently science centers, too, have mutatis mutandis to devise strategies to attract a maximum of visitors in order to survive economically. This clearly indicates that the relationship between science and its publics is an interdependent one.

### 2. The multitude of publics

All too often we tend to speak too generally about "the public", in fact a rather vague category. Yet publics may be defined by certain abilities (e.g. the ability to read or owning a television), according to class, gender or age. Books and other popularization "services" such as lectures were often tailored to match the specific interests or needs of workers, women or children. In short, the public is a dynamic category and therefore a deeply historical one. Publics are being created, grow, change and possibly fade to make room for yet another public.

Publics may also be differentiated by their varying degrees of involvement and participation in the process of research itself. Nieto-Galan reminds us that in disciplines such as astronomy, meteorology and natural history amateurs have for extended periods of time played an important role. Earthquake research is another highly intriguing field that relied heavily on a sheer mass of lay observers.<sup>2</sup> In medicine, patients (also a form of public!) at least in some fields such as AIDS-research or certain genetically inherited diseases have acquired in the course of the last decades an active role, influencing the research agenda by pub-

lic relation initiatives and fundraising. One may also argue, as Nieto-Galan does, that users of technology "co-determine" the way vacuum cleaners and light bulbs are developed in the way they use domestic technologies.

### 3. Popularization as ideology

And yet another public are, of course, students. The chapter on "La ciencia en las aulas" is a poignant reminder that any kind of formal teaching of science (at universities or other institutes of higher learning throughout the centuries) should be understood as a form of science popularization as well. Nieto-Galan, reviewing a host of secondary literature, highlights the importance of textbooks as dynamic repositories of learning and as a crucial mean for the construction of authority. The instruction given is far from neutral be it epistemologically or politically. This holds true for the classroom but also for other sites and media of science popularization. Different versions of the theory of evolution may be instrumentalized to sustain a eugenic agenda or quite the contrary. The popularization of science was used as a central argument in challenging existing political authority, e.g. in the appropriation of Darwinism by anarchists around 1900. Yet it may also serve a conservative agenda, e.g. as a mean to very deliberately instill in the visitors of a museum the belief in the blessings of science and technology in a capitalist economy and thus to discipline them socially.<sup>3</sup>

### 4. The public as a resource

A recurrent argument of *Los públicos de la ciencia* is that science popularization serves in important ways to legitimize (new) knowledge. It is all too often assumed that popularization is aimed merely at publics outside the scientific communities. Yet it is implicitly directed at the peers as well. Science popularization is a resource in the scientific debate as Nieto-Galan amply demonstrates in chapter 6, *La ciencia mediática*, a collection of case studies of highly medialized topics such as molecular biology, cold fusion and climate change. Or to give another example: The Gaia hypothesis of James Lovelock, the idea that the earth may be understood as a living organism was frowned upon by academics. Yet due to Lovelock's tireless attempts in popularizing this idea he recruited a huge number of followers particularly among ecological activists. Due to its public impact scientists were forced to deal with the Gaia hypothesis. Occasionally the realm of popularization even turns into an ink-stained battlefield. The debate between Stephen J. Gould and Richard Dawkins about the punctuated equilibrium in evolutionary theory is only one of many cases where scientists take issue with each other in public. The sphere

of popularization is and always has been a contested but also a productive space.

### 5. Boundaries in flux

Hence one may ask: Where does the “mere” popularization end and where does the “real” research begin? This question may be misleading as Nieto-Galan suggests, arguing in favor of understanding science popularization as a continuum. To draw clear-cut lines would simply cover up the problem the historian of science has to tackle. This erecting of boundaries is always part of a negotiation between different actors, such as the scientists themselves, the multitude of communicators and publics, all with different agendas. What is considered valid knowledge and what humbug, what evolves as a new scientific discipline and what ends up as mere pseudoscience, what turns out to be proper medicine and what harmful quackery is the product of a complex historical process.

The contested and fluid “borders” the book deals with are legion: There are borders between experts and lay-people, between orthodox and heterodox knowledge, between the production and the diffusion of knowledge, between “proper” ways of popularizing science and allegedly all-too spectacular formats, between “legitimate simplification” and “misleading distortion” and so on.

Nieto-Galan’s final plea is to apply Gramsci’s notion of cultural hegemony to the issue of science and its publics. Science popularization and the incessant negotiations and controversies with respect to all the boundaries mentioned above may be understood as

a battle for both truth and power. In this struggle the public plays a crucial role, both as addressee and as actor and interpreter.

Much remains to be done, though, in my view. With so many borders being deconstructed the historian of science faces a serious challenge. If everything is “blurred” what is left to describe?<sup>4</sup> And what kind of categories will we use instead if one can barely distinguish anymore between science and its publics? Still, there is no way back. As such our historical accounts may become much more convoluted and “messier” but at the same time much more interesting and closer to the complexities of knowledge production and the way it is communicated.

This book may be read by different audiences. It will certainly be of use as a textbook in universities because it synthesizes the current state of research in an accessible way. It also may serve for neighboring disciplines such as history or sociology and of course science and technology studies as a critical introduction to the history of science. *Los públicos de la ciencia* may even reach a more general public because it is well written and illustrate its arguments with numerous examples (good “stories”). In this sense one may wish that *Los públicos de la ciencia* will find indeed very many different publics, “*expertos y profanos*”.

**Oliver Hochadel**

IMF-CSIC

oliver.hochadel@imf.csic.es

### NOTES

- 1 See for example: Fyfe, Aileen, and Bernard Lightman, eds. *Science in the Marketplace. Nineteenth-Century Sites and Experiences*. Chicago: The University of Chicago Press, 2007. Despite their valuable insights some studies such as this one suffer in my view from a certain cultural myopia. See already the criticism of Daum, Andreas W. “Varieties of popular science and the transformations of public knowledge. Some historical reflections.” *Isis* 100, no. 2 (2009): 319-32.
- 2 See Coen, Deborah R. *The Earthquake Observers: Disaster Science from Lisbon to Richter*. Chicago / London: The University of Chicago Press, 2013.
- 3 See the excellent PhD thesis of Sastre, Jaume. “Un laboratori de divulgació tecnològica: El New York Museum of Science and Industry i la política de la museïtzació tecnologia als Estats Units (1912-1951).” Universitat Autònoma de Barcelona, 2013.
- 4 For a critique of „too much“ deconstruction see Weingart, Peter. „The Lure of the Mass Media and its Repercussions on Science.“ In *The Sciences’ Media Connection - Public Communication and its Repercussions*, edited by Simone Rödder, Martina Franzen and Peter Weingart. Sociology of the Sciences Yearbook, 17-32. Dordrecht: Springer, 2012, p. 11. Instead of an “actor-based” approach Weingart is arguing in favor of a “communication-based” approach that relies on Luhmann’s systems theory.