

Comment

NEARLY FIVE CENTURIES OF SCIENCE BOOKS

Popularizing science in Italy: a historical perspective. An interview with Paola Govoni

Interview by Giovanni Blandino

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ABSTRACT: The interview concerns the role of scientific books in the Italian society from the 19th century until today. Having played an important role in the formation of a national scientific community, science popularization has offered a ceaseless high-quality production during the past two centuries. On the other hand, even today scientific publications do reach only a narrow élite. In the author's opinion, only the school system has the power to widen the public for science in Italy.

To what period could we date back the birth of a national scientific community in Italy? Which role did scientific books play in this process?

The building of a national scientific community is of course such a complex process that I find it difficult to tell exactly when it can be considered as concluded in Italy. With respect to the 18th century and the beginning of the 19th, we usually talk about a Republic of Letters, a supranational community set up also by a good number of Italian natural philosophers, mathematicians, astronomers, anatomists, women too. But I suppose an Italian national community was formed only around and after the political unification. It is true that 1839 saw the first of a series of Congresses of Italian Scientists, but it was an attempt with questionable results, judging from historians' accounts. Next to congresses, journals are interesting instruments to gauge the strength and cohesion of a community: the collaboration of a regular and quite broad team of scholars is the basis to a good scientific journal. So, for example in 1855 *Il Nuovo Cimento* was launched, but it became the official voice of an Italian Physics Society much later, only in 1897. For these and other reasons, in my opinion, to find an actual national community in Italy, we have to wait until the end of the 19th century, when the country started to take advantage of the political unification and of the university reform, which allowed the birth of new important institutions such as the Polytechnic of Milan, besides a series of new laboratories which were established in different universities. Despite these important achievements, in the opinion of some historians - with whom I agree - a real national community in Italy was ultimately set up during WW1, because of the important role, both institutional and scientific, played by the collaboration between scientists and politicians.

What role did scientific books play in this process?

If you mean popular science books, the genre I'm more familiar with, I can say that the success of science popularization¹ in the second half of the 19th century played in Italy an important role in the formation of a national scientific community. Of course, this circumstance appeared in other European countries, first of all in the UK, where the so called "science for all" movement started around the 1830s. Scientists communicating to laypeople had a vital role in the formation of an image of the expert and of the scientific community in the public sphere. Popular science books and journals allowed scientists to present their work as essential to politicians and entrepreneurs, as well as to the general public: scientists entered the western public life as new powerful social actors in the age of colonialism and of the second

industrial revolution also thanks to the success of popular science. Although the social, economic, and political context was much different, also in Italy scientists began to be recognized as new professional figures since the 1860s, thanks to their public activities. Writing popular books and lecturing outside universities allowed scientists to present themselves as the best consultants for politicians and entrepreneurs. Of course, this issue opens the huge problem of the gap in the development of the different parts of the country: studies on the history of science publishing offer one of the many indicators which prove the strong link between social and economic development and the diffusion of scientific knowledge and skills.

What audience were scientific books written for in the 19th century? Has the audience changed over the 20th century?

When I say that science publishing had a great success in 19th-century Italy I'm of course speaking about a very limited publishing market: in the 1880s readers probably accounted for 3-5% of the Italian population. In that backward context, judging from the data available, in the 1890s the science-tech-med titles reached approximately 40% of the titles published. But as I said, the readers of those books belonged to an élite of affluent and literate men and women, often living in urban areas of the North. In 1861, the first census showed that about 75% of the people were illiterate at a national level, but in wide rural areas illiteracy was the rule, in particular among southern women. The percentage of readers was probably higher in industrial cities like Milan, Turin, and Genoa, and of course in Rome, and others, but still, the readers were few. In the 20th century this scenario slowly changed owing to the diffusion of elementary education. But at a national level science books and journals reached an extremely narrow part of the population in the 19th century as well as in the 20th century. Even today, Italy being one of the G8 nations, it is well known that Italians read a great deal less than other European citizens do, in particular about science. More or less, the public of science in Italy has always been restricted to graduates, a very low percentage of the population with respect to other European countries, in the 19th century as well as today. In fact, my research seems to reveal quite clearly a relation between the rise and decline in the production of science books and the rise and decline of students enrolling in science and technological faculties. In Italy, scientific literature has not been able, in the past as much as today, to go beyond the boundaries of the graduated people élite.²

When did the first popular science books appear in Italy? Were they triggered by public demand or by the will of the scientific world? What were the main features of those books?

Popular science books began to circulate - in Italy as well as in the rest of Europe - in the second half of the 15th century, with the introduction of printing. Since the spread of the printing process we can find a variety of publications like the almanacs, for example, where you can find a mixture (from our point of view, of course) of information: early medical knowledge together with recipes, botanic advice about agriculture together with astrology, a mix of what today we call low and high cultures. Menocchio's readings are one of the most interesting and well known examples of that kind of literature.³ Those publications were authored by a mixture of figures, certainly by natural philosophers, maybe signing with pennames, including women, who - in particular in the English-speaking world - wrote about pregnancy, delivery, and baby care and education together with religion and moral issues.

In the 1930s, the Italian school of Physics began to be recognized at international level. Did it somehow influence the Italian culture? Can we find, looking at this period, an increase in the public engagement in science? If so, what kind of public are we talking about?

In the interwar period there was a slight - quantitative - increase in publishing, but I haven't noticed a particular increase in science-tech-med titles. Yet, interestingly enough in the 1920s and 1930s science and tech journals of different quality rose notably, and that is a very interesting phenomenon which remains to be studied. For example, people became crazy for a new terrific invention: radio. During the

Fascist regime there were dozens of journals on the topic, journals for businessmen and amateur inventors, for physicists, engineers, and young readers.

Having said that, it is hard to tell how the so-called Panisperna guys influenced national culture: unquestionably they influenced 20th-century physics worldwide. The issue is still open to discussion. But certainly, just before leaving Italy for the States, Enrico Fermi was becoming popular on newspapers and magazines such as “Sapere”, the still living journal founded in 1935: he was exactly the right kind of young hero of science whom Fascist media would want to take possession of, as in the case of Marconi. Fermi, with other physicists and mathematicians such as Tullio Levi Civita, Guido Castelnuovo, Federigo Enriques, Orso Mario Corbino, Ugo Amaldi and others collaborated to Gentile's *Enciclopedia Treccani*. It represented a tremendous tool of circulation of good science, because the encyclopedia was placed in many schools of the Kingdom and it has been consulted by teachers for decades until recently. Interestingly, in that period Einstein's relativity caught a great audience. After the publishing of too many vague or inexact articles and pamphlets on the subjects, Castelnuovo decided to write a popular, small book to give the public a reliable introduction to the topic. Other books by Harry Shmidt, Arthur Stanley Eddington and other important scholars contributed to attract young people to physics and we can imagine that they influenced the students' choices in the university enrollment. But it should be made clear that we are still talking about a very restricted élite, as illiteracy was deeply rooted in Italy, although the Fascist propaganda proudly declared it was eradicated. Besides, as I said, graduates have always accounted for a small share of the population compared with other European countries.

The 60s: the economic boom, mass society and the end of poverty for many Italian families. At that time how did Italians relate to science books? What kinds of books were published?

In a recent research, I have studied the relationship between science and the publishing market from the political unity to the web. When I got to study the 1960s and 1970s, I came across a variety of interesting features. Those were the years of the so-called economic boom which brought about a widespread distribution of household, professional and personal appliances, the widening use of cars, the massive use of medicaments and much more. Besides, just think of the space race to remember how technology had become both the icon of progress and of the economic development, and the icon of the Cold War struggle between the two blocks. Moreover, at the end of the 1960s youth movements broke onto the national and international scene pressing politicians to take a stance on many issues, including science and technology. So, in Italy we witnessed the multiplication of scientific magazines which, by the way, led to the foundation of UGIS, the union of Italian science journalists in 1966. In the meanwhile, publishers launched new science books series, often addressed to young readers.

The whole issue can be summarized by the following question: are science and technology real benefits for society or just capitalist oppressive tools used against weak social players like women and workers, not to mention nature?

In an attempt to understand those years, I tried to put myself in the editors' place. They took advantage of that number of conflicting positions concerning the role of science and technology in society. If the country's politicians - I mean the political class as a whole, center, left and right wings - were not able to take advantage of those debates for a convincing R&D policy, it is interesting to note that those circumstances favored the production of technical, scientific and medical literature and caused an evident growth in the audience's attention for these issues.

To conclude and summarize: in Italy we frequently complain about the lack of a scientific culture. If it is true, can we find evidence of this situation looking at science books in history? More generally, can we find markers of the way science fits into Italian culture by looking at books?

In Italy there have always been excellent publishers and authors to produce high-quality science books; publishers and authors who have also been crucial in importing (and translating into Italian) the most important publications coming from the edge of science. I'm not saying, of course, that in the Italian science market sloppy science literature has been absent. I'm saying that since the introduction of printing, literate people in Italy have always had the chance to choose and read good books and journals on science,

technology and medicine. If in the Italian media we often read about a supposed eternal absence of science popularization this is, at least in part, because historians and sociologists of science have failed to produce a good and convincing literature of science studies. As I said, the big, real problem is that science publications in Italy have always remained within a very restricted élite. The origin of the problem is, in my opinion, a deep weakness of the Italian education system that has created less social mobility compared with other Western societies; an obvious consequence is that Italians read less in general, scientific literature in particular, than other Europeans. In Italy there still is a flourishing myth of an enlightened political or scientific élite that has to guide the country's development. Comparative history of science seems to demonstrate that, along with adequate governance, good and widespread basic education of all the citizens is necessary in order to produce what we call social and economic development. The good news of course is that for the so-called 'net generation' everything is changing rapidly and we will have to revise all our analytical tools. In spite of adults eternally complaining about young people's reluctance in reading books, the latest data concerning Italian teens show that their increasing access to the Internet seems to be linked to their increasing 'consumption' of books. And with the spreading of e-books, we will probably witness further changes, positive changes, in my opinion, in particular for science communication: young Italians now have the chance to cross national borders sitting in their rooms and this will increase their chances to come across good science and technology, next to rubbish of course. Again, in my opinion it is only the school - if not the family - which can offer the tools to choose.

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Notes and references

- ¹ Concerning the use of labels such as popular science, popularization and communication of science, see: P. Govoni (2002), *Un pubblico per la scienza. La divulgazione scientifica nell'Italia in formazione*, Carocci, Roma Italy; Ead., *The historiography of science popularization: Reflections inspired by the Italian case*, in F. Papanelopoulou, A. Nieto-Galan, E. Perdriguero (eds.) (2009), *Popularizing Science and Technology in the European Periphery*, Ashgate, Aldershot, pp. 21-42; Ead. (2010), *Scienza per tutti*, in L. Braida and M. Infelise (eds.), *Libri per tutti. I generi editoriali di larga circolazione tra antico regime ed età contemporanea*, UTET, Torino Italy, pp. 163-181.
- ² P. Govoni (2011), *Scienza e editoria dall'unità alla rete*, in F. Cassata, C. Pogliano (edited by), *Scienze e tecnologie dell'Italia unita*, Annali. 26, Einaudi, Torino Italy (in press), and Ead., *Dalla scienza popolare alla divulgazione. Scienziati e pubblico in età liberale*, *ibid.*
- ³ See C. Ginzburg (1980), *The cheese and the worms. The cosmos of a sixteenth-century miller*, Baltimore, Johns Hopkins University Press (1st orig. Italian ed. 1977).
- ⁴ M.P. Casalena (2007), *Per lo Stato, per la Nazione. I congressi degli scienziati in Francia e in Italia, 1830-1914*, Carocci, Roma Italy.
- ⁵ E. Fermi (2009), *Atomi Nuclei Particelle*, a cura e con intr. di V. Barone, Bollati Boringhieri, Torino Italy.
- ⁶ G. Pancaldi (ed.) (1983), *I congressi degli scienziati italiani nell'età del positivismo*, Bologna, CLUEB.
- ⁷ G. Pancaldi (1993), *Vito Volterra: Cosmopolitan ideals and nationality in the Italian scientific community between the "Belle époque" and the First World War*, *Minerva* **31**: 21-37.
- ⁸ G. Pancaldi (2006), *Wartime chemistry in Italy: Industry, the military and the professors*, in R. MacLeod and J.A. Johnson (eds.), *Frontline and factory. Comparative perspectives on the chemical industry at war, 1914-1924*, Springer, Berlin-Paris-New York, pp. 61-74.
- ⁹ C. Petrucci and S. Sebastiani (2007), *L'opera di divulgazione della fisica quantistica svolta in Italia da Enrico Fermi negli anni Venti*, *Quaderni di storia della fisica* **14**: 49-70.

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