

Book review of *La patria ci vuole eroi. Matematici e vita politica nell'Italia del Risorgimento*

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Published online: 15 January 2015

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Abstract The book by Bottazzini and Nastasi focusses on Italian mathematicians and their role in the political and social life of the Risorgimento, analysing their activities on one hand as members of a scientific community and on the other hand as individuals with different and sometimes conflicting political ideals, social relations, projects and specific objectives.

Keywords Italian mathematics · Italian mathematicians · Risorgimento

Book review: *La patria ci vuole eroi. Matematici e vita politica nell'Italia del Risorgimento* by Umberto Bottazzini and Pietro Nastasi [2].

There are numerous books about intellectuals and their role in political and social life, where the term “intellectuals” includes painters, writers and poets. In particular, in various histories of literature and art in the Italian Risorgimento there are abundant references to the political commitment of the diverse leading figures in the war for Italian independence. Mario Isnenghi, in his recent book *Storia d'Italia. I fatti e le percezioni dal Risorgimento alla società dello spettacolo* [5], goes so far as to put literary works in the foreground, analysing their content with the objective of tracing back to some of the fundamental historical and social aspects of the times.

Nevertheless, mathematicians seldom enter into these histories. They are deemed too “technical” to be considered by the intellectuals, and too “theoretical” to be numbered among scientists proper, as are physicists and

engineers. For these reasons, the figure of the mathematician has often been underestimated in the area of general histories. However there is no lack of essays and articles in which the political and institutional activities of the mathematicians take centre stage. I refer, for example, to Jean-Michel Guieu's book on Borel [4], to that by Angelo Guerraggio and Giovanni Paoloni on Vito Volterra [3] and to the more recent volume by Anne-Laure Anizan [1]. These studies concentrate on the political and social activities of Borel, Volterra and Painlevé, rather than inserting their institutional work within a larger dynamic, that of the mathematical community to which they belonged.

Instead, the recent book by Bottazzini and Nastasi (Fig. 1) places the accent on the mathematicians and their role in the political and social life of the Risorgimento, analysing their activities from a dual point of view: as members of a scientific community on the one hand (in particular, that of mathematicians) and as individuals on the other (where each has his own political ideals, his own social relations, projects and specific objectives). What this allows us to see at the same time is the project of the mathematical community as a whole during the Risorgimento, which was that of making itself heard at home and abroad by means of high-level research and publications in international journals, and the objectives, often contrary to each other, which were pursued by lone individuals coming from distinct social and cultural backgrounds. In effect, it was not easy to harmonise the interests of the Milanese mathematicians with the interests of those of Pisa, Bologna and Naples who, before Italian Unity (1861) belonged to different states.

This book covers the entire nineteenth century and the early part twentieth century, from the Napoleonic era to the eve of World War I, and is constituted of five main parts,

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Fig. 1 Cover of *La patria ci vuole eroi* by Umberto Bottazzini and Pietro Nastasi

divided according to a chronological criterion. After having described the various vicissitudes of the Italian mathematicians' feelings of love/hate first towards the French Revolution and then towards the Napoleonic period, the focus of the book moves to new scenarios, that is, to those revolutions that would lead to Italian unity and to the great "cosmopolitan" project that the University of Rome was intended to be. Thanks to a lengthy bibliography and numerous unpublished letters and acts of parliament, the book reveals, among other things, the frenetic political activity of the Torinese Federico Menabrea, leading member of the Catholic Right; the institutional role of Francesco Brioschi, founder of the Istituto Tecnico Superiore in Milan (today the Politecnico di Milan), as well as his disastrous experiences as a financial expert; the involvement of Luigi Cremona, student of Brioschi and friend of the Cairoli brothers, as a member of parliament and director of the school of engineering in Rome, with ideas and objectives that were often contrary to those of his teacher. The interest of these men of Northern Italy were different from those of the Pisan physicists and mathematicians, among whom we recall Ottaviano Mossotti, Enrico Betti, Luigi Bianchi, Ulisse Dini, all leading figures in the prestigious Scuola Normale Superiore founded by Napoleonic decree, and who were often in conflict with the men of science from Naples and Sicily. A common denominator of all the figures of this history was their *fede patriottica*, patriotic faith, in the name of which they fought for a united Italy in the war of independence and then worked to

improve conditions in Italy, not only from the point of view of mathematics, but more generally in terms of culture and institutions. Furthermore, these men worked to make Italy a modern nation (for example, with an efficient railway system comparable to other European countries), to put into effect a reform of schools and universities, to improve relationships between the universities and the private enterprise and industry. Leaving research to serve their country was a sacrifice many of them felt called to make. In any case, this gives the impression that while Italian Unity made Italy, at least on paper, but there was still a need to "make the Italians". Above all what was lacking was a unity of clear intentions and projects, among politicians but also among mathematicians.

We shouldn't forget that these men, who were mathematicians but were first of all the intellectuals of their day, found themselves faced with situations that were very complex. Their ideas, or better, their ideals, were hampered most of the time by bureaucratic red tape and endless parliamentary sessions. On various occasions, after having taken months to draft a reform, it failed to pass because of a sudden collapse of the government or a veto by one of the chambers. This was the case of a reform proposed by Cremona regarding the autonomy of the University, which ran up against serious opposition, even among mathematicians. The Neapolitan Ernesto Pascal saw the corporatism of the university as a mortal danger for autonomy, while Brioschi criticised another essential point of the reform: the fact that engineers were to be trained in the universities instead of in specific institutions (the polytechnic institutes). Another point of conflict was the creation of a large faculty of philosophy that was to include both mathematics and philosophy, after the German model that Cremona borrowed. While the reform that Cremona hoped for was abandoned in 1886 for various reasons, many years later some of its essential points—including the urgency of bringing the scientific and philosophical cultures closer together—were embraced by Federigo Enriques. Around 1910 the philosophers Benedetto Croce and Giovanni Gentile violently opposed Enriques's idea, fearing the domination of science over philosophy, and so Enriques's proposal was also rejected. The famous Gentile Reform of 1923, enacted at the height of the Fascist period, finally sanctioned the clear division between philosophy and science, sealing the cultural supremacy of the former over the latter. Among other things, the similarity of many of the topics addressed in these reforms to those discussed today is amazing.

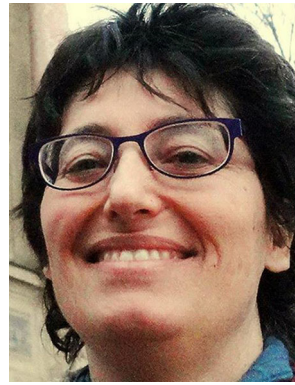
Mathematicians thus, on a par with other intellectuals, were engaged first-hand in fighting, militarily as well as in other ways, for the cause of liberty that was to lead to Italian Unity, and then participated actively and enthusiastically in the political life of the nation. Their actions

were sometimes crowned with success, but there were also scorching defeats due to opposition, including that from within the mathematical community itself. It was an *enchantment* and a *disenchantment* that the mathematicians, to their regret, found themselves sharing with other intellectuals of the times.

Translated from the Italian by Kim Williams.

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Rossana Tazzioli has taught history of mathematics at the Université Lille 1 since 2008. She has published various articles, essays and books for a general audience on the history of science. In collaboration with Laurent Mazliak she is the author of *Mathematicians at War. Volterra and his French Colleagues in World War I* (Springer, 2009) and *Riemann. Le géomètre de la nature* (Paris, Belin, 2010). She has organised several international congresses and conferences and is a member

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