Giovanni Battista Guccia: Pioneer of International Cooperation in Mathematics

Reviewed by Karen Hunger Parshall

Giovanni Battista Guccia
*Pioneer of International Cooperation
in Mathematics*
by Benedetto Bongiorno
and Guillermo P. Curbera

Giovanni Battista Guccia (1855–1914), Sicilian nobleman and mathematician, was a man with a vision. In 1884, he founded and bankrolled the *Circolo Matematico di Palermo* in an effort to correct what he described to Luigi

Cremona as “the miserable state of abandonment of the studies of mathematics in Palermo” (p. 94), his hometown. Four years later, he had succeeded in turning what had been a pamphlet detailing the society’s activities into a new mathematical research journal, the *Rendiconti del Circolo Matematico di Palermo*. And, by at least 1904, he had conceived the idea of transforming the *Circolo* into an international mathematical society that would, in his words, “spread and disseminate mathematical production worldwide, making use of the progress achieved by modern civilization in the field of international relations” (p. 158). In 1914, no less a mathematician than Edmund Landau was

in Palermo to fête the society’s thirtieth anniversary. As he described it, the *Circolo* had “only a minority of its members from the city where it is situated, but . . . reunites almost a thousand mathematicians from all countries of the world and, among these the greatest and most illustrious scholars from Italy, Germany, England, France, the United States, Hungary, and from all nations where our science is cultivated” (p. vi).

Guccia’s life and, in particular, his conception and animation of the *Circolo* and its *Rendiconti* shape the story that Benedetto Bongiorno and Guillermo Curbera tell in their book. Bongiorno, former Vice President of the *Circolo* and a member of the Department of Mathematics and Computer Science of the Università degli Studi di Palermo, and Curbera, curator of the Archives of the International Mathematical Union and a member of the Department of Mathematical Analysis at the Universidad de Sevilla, began their collaborative project with questions that may seem simple: What was Guccia’s family background? What was the source of his personal wealth? Why did he pour his private resources into a mathematical society and its publication? The answers to these questions uncovered, they detail Guccia’s “circumstances, his projects and achievements, and his place in the development of an international community of mathematics” (p. x).

The authors set the stage for their book with what they describe as “Some History” (p. 2) of Sicily that opens with a lengthy description of the island from the writings of the first-century CE geographer Strabo. “Sicily,” Strabo tells us, “is triangular in shape; and for this reason it was at first called ‘Trinacria,’ though later the name was changed to the

Karen Hunger Parshall is Commonwealth Professor of History and Mathematics at the University of Virginia. Her email address is khp3k@virginia.edu.

Communicated by Notices Book Review Editor Stephan Ramon Garcia.

For permission to reprint this article, please contact:
reprint-permission@ams.org.

DOI: <https://doi.org/10.1090/noti2231>

more euphonious “Thrinacis.” Its shape is defined by three capes: Peloris, which with Caenys and Columna Rheginorum forms the strait; Pachynus, which lies out towards the east and is washed by the Sicilian Sea, thus facing towards the Peloponnesus and the sea-passage to Crete; and third, Lilybaeum, the cape that is next to Libya, thus facing at the same time towards Libya and the winter sunset. As for the sides which are marked off by the three capes . . . ” (p. 2). Here at the beginning, and in numerous places throughout the text, the reader is left to wonder at the relevance to the life and times of Guccia of information presented. There is an unfortunate tendency both to over-quote and to return to the distant past in an effort to set the historical stage.¹

Still, for those readers unfamiliar with Sicily, there is much here to learn, such as that “[a]t the end of the fifteenth century, the Spanish crowns of Aragon and Castile joined, and as a result Sicily became one of the many possessions of the King of Spain, who named viceroys to rule the island. Spaniards brought new crops from America (such as tomatoes, corn, tobacco, and also the prickly pear cactus), as well as the Inquisition, causing the expulsion of Jews from Sicily in 1492” (p. 5). A genealogy of the noble Tomasi family—which traces back on Sicily to the sixteenth century—is also included since one later member of that family, Giulio Fabrizio Tomasi, was Guccia’s uncle, had scientific interests (in astronomy), and may “possibly” (p. 27) have influenced his nephew. Although this influence is only speculated, a section on the development of astronomy in Palermo follows that opens with descriptions first of the Ptolemaic and then of the Copernican models before moving to the founding of the astronomical observatory of Palermo by Giuseppe Piazzi in 1820. Only after all of this general scene-setting does the reader get to the authors’ original and painstaking genealogical work on the Guccia family, which not only situates the mathematician within the Sicilian aristocracy but also pinpoints the link between the Guccia and Tomasi families.

The narrative next moves to Guccia’s “Formative Years” (p. 35) but, here again, periodically stalls. There are overly detailed historical interludes, this time sections on the educational system of the Italian Risorgimento, that is, the period from roughly 1815 through the unification of the independent Italian states in 1861, as well as on the history of the university and mathematics in Sicily and on Italian science and mathematics during the Risorgimento. While these topics merit mention and at least a *sense* of them is important to the story, judicious editing—with the question “what does the reader actually need to know to understand Guccia and his life?” in mind—would have significantly pared them down and greatly improved the

book’s flow and focus. The section on the university and mathematics in Sicily, for example, goes back to what the authors describe as a “mandatory” beginning “with Archimedes, known as ‘the greatest mathematician of Antiquity’ ” (p. 44), while that on Italian science and mathematics, ostensibly in the Risorgimento, nevertheless reminds the reader at some length that “[t]he Renaissance produced in Italy not only beautiful art but also deep mathematical activity” (p. 55) and then lists the names of Italian mathematical scientists beginning with that of Luca Pacioli (1447–1517) and running through to Girolamo Cardano (1501–1576), Galileo Galilei (1564–1642), and Evangelista Torricelli (1608–1647), among others. Despite these diversions, the reader comes away with a reasonably clear sense of Guccia’s education, first in engineering at the Technical Institute of Palermo but, after 1875, in pure mathematics at the University of Rome.

As a twenty-year-old student, Guccia had attended—perhaps, the authors again speculate, owing to Tomasi’s influence—a meeting of the Società Italiana per il Progresso delle Scienze that was held in Palermo in 1875. On that occasion, Guccia met Rome’s Luigi Cremona and subsequently resolved to abandon engineering for pure mathematics. By 1880, the young Palermitan had defended a thesis “On a Class of Surfaces Representable Point by Point on a Plane”—directly in line with his advisor’s work in algebraic geometry (the authors provide some mathematical details here and elsewhere in their book)—and had returned to Palermo after a postdoctoral summer and fall that had taken him to Paris, Reims and a meeting of the Association Française pour l’Avancement des Sciences, and finally London. In all of these places, he met and interacted with some of the late nineteenth century’s leading mathematicians. These connections to the international mathematical community—as well as new ones that he made in Scandinavia and elsewhere throughout the remainder of his career—strongly influenced his subsequent thoughts and actions.

Next followed what the authors term “a period of maturation” (p. 90) from 1881 to 1883 during which Guccia worked on his mathematics, tended to his family’s business of supplying water to the city of Palermo, and continued to travel both for his health and for mathematics. The twenty-eight-year-old mathematician also “conceived the idea of founding a mathematical society in Palermo, with the aim of having a place where the [city’s] mathematicians . . . could meet and discuss current research problems” (pp. 95–96). As the authors comment, “[i]t is remarkable that the mathematicians of the University of Palermo followed” (p. 96) the young mathematician’s lead, especially since, at that moment, he was still an independent scholar. Yet, follow they did.

The Circolo Matematico di Palermo was founded in 1884, and one year later, the group, which had

¹Much later in the book (p. 154), and without recalling what was revealed on p. 2, the reader does learn that the trinacria was incorporated in the Circolo’s logo thus symbolizing its Sicilian roots.

started out with twenty-seven members, had increased to thirty-four. Regular meetings were held in Guccia's *palazzo*; a library had been started; and Guccia had written almost a dozen research papers. As he told Cremona in March 1885, "[t]he Circolo thrives and the mathematical awakening achieved in Palermo is remarkable" (p. 103). By 1888, Guccia had also transformed the Circolo's *Rendiconti* into a true research journal complete with an editorial board that consisted of five mathematicians from Palermo and fifteen from elsewhere in Italy. The year 1888 also marked the admission of foreigners—among them, the Swedish mathematician and founder-editor of *Acta Mathematica*, Gösta Mittag-Leffler—into the Circolo's membership.

If, as the authors characterize it, this represented the end of the "first stage" (p. 85) of Guccia's organizational efforts, the "second stage" (p. 127) from roughly 1889 to 1908 involved his "most ambitious" goal, that of "developing the Circolo into an international association of mathematicians" (p. 127). Indeed, at the time of its thirtieth anniversary, three in four of the Circolo's members were foreign, with leading mathematicians like William Young and G. H. Hardy from Great Britain, Henri Poincaré and Camille Jordan from France, Felix Klein and David Hilbert from Germany, Teiji Takagi from Japan, Wacław Sierpinski from Poland, and Eliakim Hastings Moore and Oswald Veblen from the United States lending their support to Guccia's venture.

This period also witnessed Guccia's successful application, in 1889, for the chair of higher geometry at the University of Palermo and much political intrigue. Mathematicians outside of Palermo tried to thwart Guccia's plans in favor of an agenda to found an Italian—as opposed to a Sicilian—mathematical society. They also attempted to scuttle his efforts to have the quadrennial International Congresses of Mathematicians (ICMs) (begun in 1897)—and not a society associated with one particular country—serve as the venue for the internationalization of mathematics.

In the end, the Circolo coexisted with both the Unione Matematica Italiana (founded in 1922 by Luigi Bianchi, Vito Volterra, and Salvatore Pincherle) and with the ICMs. As evidenced by the encomiums delivered in 1914, the *Rendiconti* was perceived as perhaps Guccia's most fundamental organizational contribution. In Vito Volterra's view, Guccia had given "to his journal an international imprint, thus placing it on secure and solid grounds. Due to esteem and sympathy, he acquired for the *Rendiconti* works by mathematicians from all over the world. With assiduous, persevering and ingenious work, with fine discernment, he was able to choose among authors, among schools, among directions, so that the Circolo has published works that have made history in the scientific world" (p. 203). Moreover, Guccia was personally credited with having supported mathematicians—both those just starting out and

those well established—at critical moments in their careers by carefully editing their papers and publishing them with dispatch. A series of eleven color reproductions from the archives clearly reveal the acuity of Guccia's editorial eye and provide a rare glimpse into the editorial process.

Guccia died just months after the Circolo's thirtieth birthday. His passing—as well as the outbreak of World War I followed by Mussolini's rise—severely taxed the mathematical society. When the Allied bombardment of Sicily destroyed large swaths of Palermo, the printing house that Guccia had set up in 1893 for the publication of the *Rendiconti* was one of the casualties. Still, "[a]fter World War II, the Circolo Matematico di Palermo was reconstructed and the *Rendiconti* commenced the publication of its second series" (p. 231). Guccia's vision thus, at least in part, continues to be realized today.

The English-reading public owes Bongiorno and Curbera a debt of gratitude for making this story accessible to them, even if the authors have retold much of the story that Aldo Brigaglia and Guido Masotto presented in Italian in 1982.² It is unfortunate, however, that their efforts in English were not more thoroughly supported by their editors at Springer, since linguistic infelicities, although not ultimately detrimental to an understanding of the intended meaning, riddle the book's otherwise beautifully produced and lavishly illustrated pages. This lack of effective editing would seem to be an increasing problem with texts by non-native English speakers and suggests that publishing companies should be more mindful of their responsibilities as publishers *and* editors.

Karen Hunger
Parshall

Credits

Book cover is courtesy of Springer International Publishing. Photo of the author is courtesy of Brian Parsons.

²Aldo Brigaglia and Guido Masotto, *Il Circolo Matematico di Palermo* (Bari: Edizioni Dedalo, 1982). As the authors of the present book see it that earlier work, although "fundamental and pioneering" (p. ix), drew rather exclusively from the archive of the Circolo and the *Rendiconti*, which limited its authors' ability to uncover more "about the person who dedicated his life both to the Circolo and the *Rendiconti*," (p. ix), namely, Guccia.