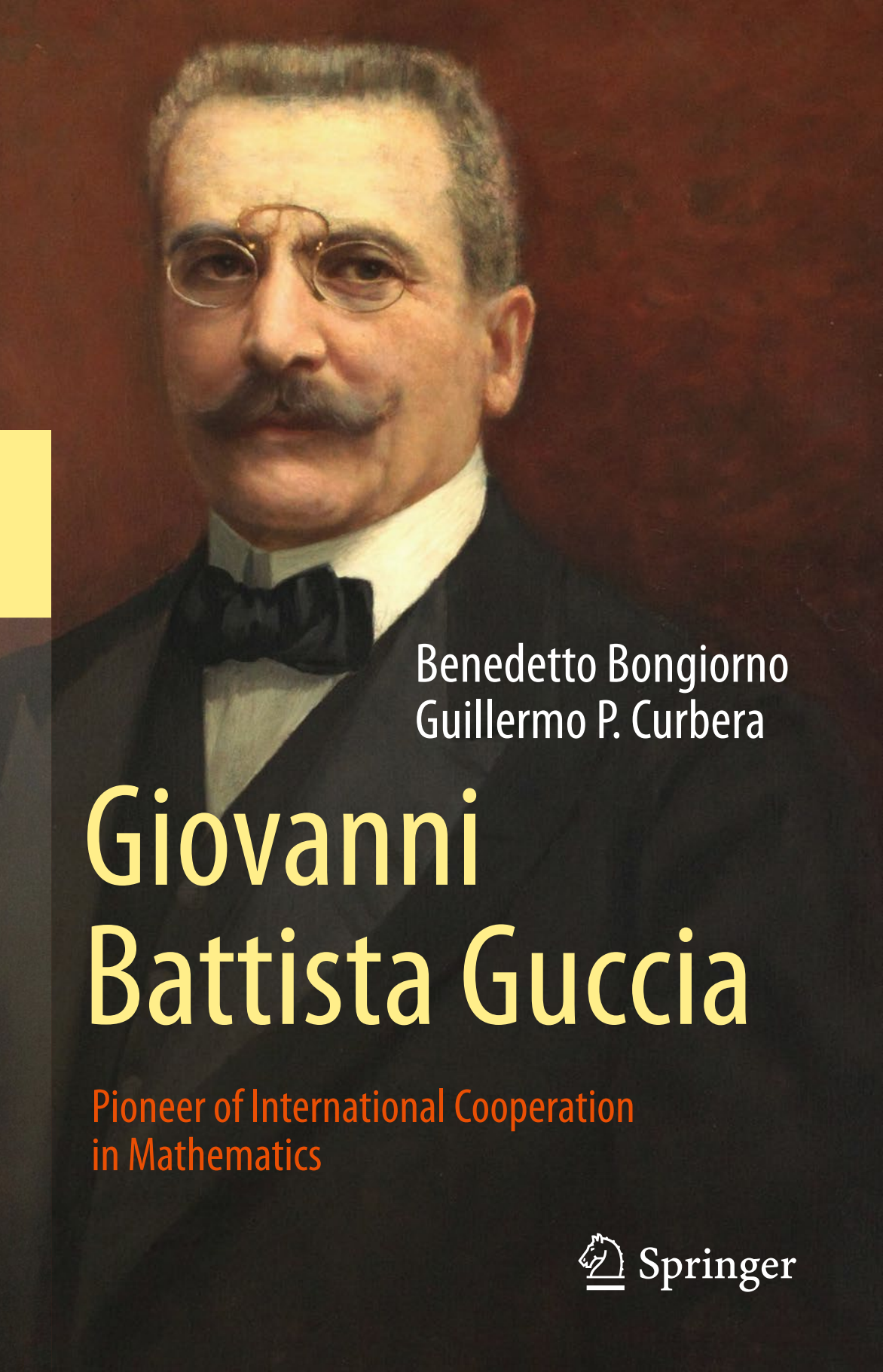

Benedetto Bongiorno
Guillermo P. Curbera

Giovanni Battista Guccia

Pioneer of International Cooperation in Mathematics

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Introduction

May 9, 1943, was a day of memorable tragedy for Palermo. At noon, the air alarms announced that a bombardment was about to start. This was not a novelty. After the Allied victory over the Africa Corps of Marshal Erwin Rommel in El Alamein at the end of 1942, the city had been suffering regular bombardments in preparation for the Allied landing in Sicily. The military targets of the bombings were Palermo's port facilities, the railway and the roads. Targeting had been poor however, as German defenses on the nearby Mount Pellegrino forced the Allied aircraft to fly at high altitudes. It was at this time that the Allied forces adopted the new and devastating military strategy of carpet-bombing. The human cost of the bombardment was relatively low, as many inhabitants had fled to the countryside months before, yet the destruction of Palermo's housing was significant. Figures indicate that forty percent of Palermo's housing was destroyed. The attack was repeated that night. In addition to housing, many public buildings were damaged; some partially destroyed and others reduced to ruins. The rich cultural heritage of this two thousand-year-old city was ravaged. More than one hundred churches, monasteries and noble palaces were severely or totally destroyed. Even today, controversy arises over this devastating bombardment by the Allied Forces. Was such devastation necessary to demonstrate the consequences of siding with Mussolini's regimen?[1]

One of the palaces affected by the bombing was located on Via Ruggiero Settimo. The Palazzo Guccia was a large noble palace, not yet a century old. The Palazzo Guccia will play an important role in our story and, consequently, in the history of the international organization of modern mathematics.

The words of Edmund Landau will introduce us to the owner of the palace and the main character of our story, and to his work, the main object of our story. In his capacity as representative of the Göttingen Mathematical Society, Landau delivered a speech in 1914. The occasion of the speech will be revealed in short.

[1] A. Chirco, *Memoria del 9 maggio 1943,* Fondazione Salvare Palermo, 2003, Palermo.

Ladies and gentlemen,
Dear members of the Circolo Matematico di Palermo,
Dear M. Guccia,

I am sorry for not being able to make use of your beautiful Italian language: my German is not sufficiently known here, despite the great friendship that unites both of our countries, so my only solution is to speak in French. Despite this, what I am going to say comes from the depths of my heart, and it is for saying this that I came to Palermo.

We are celebrating the jubilee of a society which has only a minority of its members from the city where it is situated, but which 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. It is the only permanent international organization that we have; we thus consider Palermo as the center of the mathematical world. This is not because Palermo is the seat of a society whose sessions we can hardly attend. This is not because of the pleasure and the honor that we get from relating with the well-known mathematician and charming man who is M. Guccia. The reason lays mainly in the journal, the *Rendiconti*, which the Circolo Matematico publishes under the direction of its founder, M. Guccia, who has dedicated himself to its oversight for the last thirty years. Being himself aware of all chapters of the mathematical sciences, no one other than he could be devoted to such a task. The *Rendiconti* is the best mathematical journal in the world. M. Guccia has managed to successfully gain as friends of his journal serious mathematicians from all countries. We would have to enter into details that do not interest this assembly in order to explain why it is preferred to publish the best of our results in the *Rendiconti* of Palermo rather than in any other journal of the world. I want to mention two details, pointing out, first of all, the so amiable and encouraging way in which M. Guccia treats the authors, and especially mention the great rapidity in which the memoirs are composed and printed. To illustrate, it has occurred to me that it took three days for me to arrive to Palermo, while it takes only eight days for me to receive the galley proofs after submitting a manuscript. And thanks to the perfection of the printing there was not even much to correct.

The greater part of the world is not interested in mathematics but I am convinced that in Palermo, even before this celebration, the Circolo Matematico was well known; whereas, it is certainly not so well known that in Germany there is a city called Göttingen (much smaller than your large and illustrious city), in which we do a lot of mathematics, and which has a close connection with the Circolo. I need to speak about this place, since I am commissioned to bring their congratulations.

First of all, from our Mathematical Society of Göttingen, the center of our scientific life, which you kindly invited to be part of this celebration, and that has given me the honor of representing it here.

I bring also the congratulations of four members of your Editorial Board living in Göttingen: Klein, Hilbert, Carathéodory, and myself, who, at the same time, are the only professors in pure mathematics in our university. Outside Palermo there is certainly no other city bringing a larger number of colleagues to the editorial board.

I do not think that M. Guccia intended to choose so many professors from the same university as collaborators: a university enjoying, since the times of Gauss, Dirichlet, Riemann, Minkowski and others, a great mathematical reputation. On the contrary, two of us were invited by M. Guccia to become members of the Editorial Board when we were in other places, and even before we had any official position in the education of our country. Perhaps the collaboration that links us to the Circolo has also helped us teach our students, and continue together the direction of the mathematical school of Göttingen. In any case—and it is one of the great and immortal merits of M. Guccia, and among those, one of the most remarkable—he has always judged mathematicians solely on their works, without looking at their age or official rank, and he has helped the beginners—as I was, ten years ago—to publish their research in such a major journal, and gain confidence in themselves. I came here to thank the Circolo Matematico, that is to say M. Guccia, since he has facilitated,

> for many mathematicians, their situation in science. I hope that he shall see, for a long time and in perfect health, the fruits of his work in laborious life, the gratitude of all of us who are proud to be his collaborators, and overall the progress of our dear mathematical science, to which he dedicated his life.[2]

In this intense speech, Landau was referring to the Sicilian mathematician Giovanni Battista Guccia (Fig. 1). Edmund Landau (Fig. 2)—author of mathematical gems such as the *Handbuch der Lehre von der Verteilung der Primzahlen*, and the *Grundlagen der Analysis*—was well known for his rigor and precision. Landau never strayed from fair, even blunt judgment for the sake of sentiment, making his praise of Guccia's character and his work managing the journal Rendiconti del Circolo Matematico di Palermo even more remarkable.

In 1914, Giovanni Battista Guccia was the leading figure of the Circolo Matematico di Palermo, the largest mathematical society in the world, and was the managing editor of the international mathematical journal with the largest print run worldwide. Guccia founded the Circolo Matematico di Palermo in 1884, and thirty years later, the society grew into a truly international society of around nine hundred members. Two thirds of its members were foreigners, among them, 140 were from Germany and 140 from the United States of America. The Rendiconti del Circolo Matematico di Palermo published yearly eight hundred pages of mathematical research and printed the outstanding figure of 1,200 copies of them. In the editorial board of the Rendiconti there were renowned mathematicians such as Borel, Carathéodory, Hadamard, Hilbert, Klein, Landau, Mittag-Leffler, Picard, Poincaré (until he passed away in 1912), and De la Vallée Poussin. Today the mathematical journal Rendiconti del Circolo Matematico di Palermo, so much praised by Landau, is known mainly for the many classical and influential papers published mainly at the beginning of the twentieth century. Much less well known is the mathematical society that supported its publication: the Circolo Matematico di Palermo.

Giovanni Battista Guccia was a prominent figure in the international mathematical arena of his time. A measure of such prominence was the celebration that was organized in Palermo on April 1914 to commemorate the 30th anniversary of the foundation of the Circolo: it was a worldwide celebration with some one hundred and twenty mathematical societies, academies and scientific institutions from twenty different countries represented. It was at the opening ceremony of the celebration when Landau delivered the speech quoted above. However, Giovanni Battista Guccia is not well known among mathematicians today. There are two reasons for this. The first and most important one regards his mathematical contributions. Guccia was a doctoral student of the nineteenth century Italian algebraic geometer Luigi Cremona. Algebraic Geometry changed deeply at the end of the nineteenth century as a result of the introduction of powerful tools from Algebra. Guccia, however, did not follow these changes. At the same time, Guccia started to devote

[2] *Discorso del Prof. Dr. Edmund Landau*, XXX anniversario della fondazione del Circolo Matematico di Palermo, Adunanza solenne del 14 aprile 1914, Suppl. Rend. Circ. Mat. Palermo, 9 (1914), pp. 16–17.

Fig. 1 Giovanni Battista Guccia (1855–1914). Courtesy of the Accademia Nazionale dei Lincei

Fig. 2 Edmund Landau. Courtesy of the Archives of the Mathematisches Forschungsinstitut Oberwolfach

much of his time and effort to running the society and the journal. As a consequence, his mathematical contributions lost the front line, and have not resisted the passage of time. The second reason is the decline, especially after World War II, of the Circolo Matematico di Palermo as a mathematical society and as a result, the decline of the influence of its journal, the Rendiconti del Circolo Matematico di Palermo.

Further, not much is known of Guccia's origins. The classical Treccani biographical dictionary of the *Enciclopedia Italiana di Scienze, Lettere ed Arti'* only mentions the fact that Guccia's family was wealthy, and that his father belonged to a minor branch of nobility. Unfortunately, the Palazzo Guccia does not exist any more; thus, no family archives exist for Giovanni Battista Guccia. However, we are fortunate to have the Archive of the Circolo Matematico di Palermo and of its Rendiconti. Their mathematical richness is an invaluable resource. Using the material of this archive, Aldo Brigaglia and Guido Masotto wrote a fundamental and pioneering study of the Circolo Matematico di Palermo in 1982.[3] This archive is also a privileged, though limited, source to learn about the person who dedicated his life both to the Circolo and the Rendiconti. In any case, the lack of biographical information inhibits our understanding of the deep personal involvement of Giovanni Battista Guccia in the creation and running of the Circolo Matematico di Palermo, and his willingness to make use of his personal fortune in the managing of the Rendiconti. A better understanding of the source and the extent of his wealth were required. For that, it was necessary to start tracing back his family origins.

[3] A. Brigaglia, G. Masotto, *Il Circolo Matematico di Palermo*, Edizioni Dedalo, 1982, Bari.

At this point, the interest in Giovanni Battista Guccia of the authors of this book merged. For Benedetto Bongiorno, Guccia was a familiar figure since he served as vice-president of the Circolo Matematico di Palermo from 1983 to 1997, helped organize the centennial of the foundation of the Circolo Matematico di Palermo in 1984, and created (together with Pasquale Vetro) the historical index of articles published in the Rendiconti from 1887 to 1977. Guillermo Curbera became interested in Guccia in 2006, when he organized for the International Congress of Mathematicians held in Madrid an exhibition on the visual history of the International Congress of Mathematicians from 1897 to 2006. A discussion in 2012 with the historian Orazio Cancila, from the University of Palermo, and with Salvatore Savoia, first General Secretary of the Sicilian Society for the "Storia Patria", led the authors to realize that the Guccia family was related to the Tomasi family, a noble Sicilian family whose wealth and decadence was masterly narrated in the novel *Il Gattopardo* (translated into English as *The Leopard*).[4] Indeed, Giovanni Battista Guccia was a nephew of Giulio Fabrizio Tomasi (known as the Prince of Lampedusa), who was the historical figure behind the main character in *The Leopard*. The relationship between these two families, the Guccias and the Tomasis, plays a key role in our story. That relation connected Guccia with the well-known astronomical interests of his uncle. This exposure to astronomy and science was a determining factor in young Giovanni Battista's own interest in science and in mathematics. The Tomasi family lived in the Palazzo Lampedusa, which was near the Palazzo Guccia, and was bombed during the bombardments of 1943 down to ruins.

We now know about Guccia's family, about its fortune, and about the influences that Giovanni Battista received from his family background. This provides a better understanding of his life and also of his activity as a mathematician, as founder of a mathematical society, and as editor of a mathematical journal. These details shed light on important episodes in the history of the Circolo and the Rendiconti. With this new information, this book is about Giovanni Battista Guccia, his circumstances, his projects and achievements, and his place in the development of an international community of mathematics.

The book is organized into seven chapters and an appendix consisting of eight parts.

The first chapter is devoted to the background of Giovanni Battista Guccia. We present it organized into four concentric circles: Sicily and Palermo, the importance of astronomy in early nineteenth century Palermo, the origins of the Guccia family, and the early influences on the young Giovanni Battista. Guccia was Sicilian-born and lived all his life in Palermo. These two facts over-influenced his life course. Thus, a short account of the history of Sicily is presented. Giuseppe Piazzi's discovery of the asteroid Ceres at the beginning of the nineteenth century had an immense impact on science and society. Piazzi's discovery was especially

[4]G. Tomasi di Lampedusa, *Il Gattopardo,* Feltrinelli, 1957, Milan. In English: *The Leopard*, Pantheon Books, 1960, New York.

significant in Palermo, since he discovered the asteroid in the Palermo Observatory. This is relevant to our story, since it influenced the Prince of Lampedusa and hence his young nephew Giovanni Battista. To understand this development, we present a brief summary of the situation of astronomical knowledge before Piazzi. With respect to Guccia's family origins, the first family group carrying the name Guccia is found in the early eighteenth century in Palermo. Details from this family genealogy provide insight into the origin of the family's fortune, way of life, and character, all of which greatly influenced Giovanni Battista in his youth. Finally, we end the chapter by describing how the practical and business-oriented atmosphere of the Guccia family interwove with the astronomical activity of Giovanni Battista's uncle, the Prince of Lampedusa, in the education of Giovanni Battista.

The second chapter deals with the school and university education of Giovanni Battista. He was a boy when the Kingdom of Italy was founded and a new school system was created. We briefly describe the school system of the Risorgimento and then follow the steps of young Giovanni Battista through his middle school and technical education. With respect to the existence of universities, it is important to note that Sicily and Naples had remained isolated from the rest of the Italian peninsula for centuries. The establishment of a university in Palermo, then, was decided exclusively between Sicily and Naples. We trace the political difficulties that stalled the creation of the University of Palermo until 1805. A short intermission allows us to make a presentation of mathematicians born in Sicily, from Archimedes to Francesco Maurolico and Niccolò Cento. Giovanni Battista's way through the University of Palermo was cut short due to the most important encounter of his life. It was at a meeting of the Società Italiana per il Progresso delle Scienze in 1875 that Guccia met Luigi Cremona, the renowned algebraic geometer. After meeting Cremona, Guccia moved to Rome and enrolled in the university, where he came into contact with the Italian mathematical academic world. Five years later he presented his thesis under the guidance of Cremona.

The third chapter is an intermission that is necessary for understanding the scientific context in which Guccia devised his professional projects. We review three important processes regarding the organization of mathematics as a scientific discipline that took place in the second half of the nineteenth century: the foundation of national mathematical societies, the creation of research mathematical journals, and the organization of mathematics at a level larger than nations. Since we will follow the process of the creation of a mathematical society, the Circolo Matematico di Palermo, it is most appropriate to review the creation of two prominent mathematical societies, the London Mathematical Society and the Société Mathématique de France. These societies were formed not long before the Circolo, and several of their mathematicians later became very close to Guccia and likely influenced his work at the Circolo. As we are going to follow the process of creation and management of a mathematical journal, the Rendiconti del Circolo Matematico di Palermo, it is also appropriate to review the creation and management of an early and important mathematical journal. We focus on Acta Mathematica, because of the similarities with the Rendiconti and also on account of the close relationship between Guccia and the founder of Acta Mathematica, Gösta Mittag-

Leffler. Regarding the international organization of mathematics, we will discuss the origins of the International Congresses of Mathematicians, and review the first congresses before the 1908 Rome Congress in which Guccia was deeply involved.

The fourth chapter narrates the process leading up to Guccia's conception of a mathematical society, as well as the founding of both the Circolo Matematico di Palermo and its journal, the Rendiconti del Circolo Matematico di Palermo. We follow Guccia's post-doctoral journey in the summer of 1880 through Paris, Reims and London. During that trip, he established professional relations and friendships that lasted for life, and determined his personal viewpoint of mathematics and its modern structuring. After devoting himself to research with his mentor Luigi Cremona for some time, he decided in 1884 to found a mathematical society. He was at that moment twenty-eight years old. Despite his youth, he was able to navigate the academic environment in Palermo without any professional relation with the university. His early success encouraged him to lead the society towards internationalization four years later, and to create the journal in order to garner its international participation.

The fifth chapter is devoted to the most ambitious of Guccia's goals: developing the Circolo into an international association of mathematicians. We start by reviewing the relation of Guccia with two important mathematicians: Vito Volterra and Henri Poincaré. Guccia's close relationships with these two mathematicians were a great influence on him and his projects for the Circolo. In the period from 1889 to 1908, several important events also occurred: he applied to a professorship in the University of Palermo through a somewhat turbulent process, and he had to face a rebellion inside the Circolo that threatened the nature of the society as Guccia had conceived of it. On both issues, he succeeded. The Circolo experienced a burst of success after the Heidelberg International Congress of 1904: its membership increased, and its fame expanded worldwide. These were the contour conditions for Guccia's visionary project: transforming the Circolo into the international association of mathematicians. The issue was discussed and decided at the Rome International Congress of 1908.

The sixth chapter reviews the period from 1908 to 1914 when the Circolo and the Rendiconti reached their maximum splendor. The society grew at a strong, steady rate, and the journal strengthened its international scientific prestige, playing an important role in the publication of first-line results. To illustrate the quality reached by the Rendiconti we comment on several mathematical papers published in the journal. The international nature and the internal organization of the society played a crucial role in such success, and we analyze these causes and effects in detail. Finally, the celebration in 1914 of the 30th anniversary of the foundation of the society was the highlight of the Circolo Matematico di Palermo, of the Rendiconti and of Guccia's projects.

The Epilogue narrates Guccia's death, which occurred as World War I began. The dramatics of the war deteriorated his already poor health; as a true internationalist, he felt great pain at the spectacle of Europe destroying itself. The death of Guccia and the aftermath of the war had serious consequences on the Circolo and the Rendiconti. However, the society's members were able to resist the pressure of

Mussolini's regime until World War II, when the bombing of Palermo literally destroyed the project. We finish this story with an evaluation of the work, the efforts and the contributions of Guccia to the main aim of his life: the development of an international community of mathematicians.

The Appendixes contain: the list of the mathematical works of Giovanni Battista Guccia, as listed by the Jahrbuch über die Fortschritte der Mathematik; the Statute of the Circolo Matematico di Palermo, in its three stages of development, 1884, 1888 and 1908; the list of members joining the Circolo Matematico di Palermo from its foundation in 1884 until 1914 (scanned pages of the Annuario Biografico del Circolo Matematico di Palermo); statistical data on the membership of the Circolo, in particular, the distribution of membership by country (scanned pages of the Annuario Biografico del Circolo Matematico di Palermo); the list of members of the Steering Council of the Circolo Matematico di Palermo from 1888 to 1914 (scanned pages of the Annuario Biografico del Circolo Matematico di Palermo); and the original text of the excerpts of most of the documents quoted in the book, i.e., speeches, letters, and other published materials.

The issue of images of Guccia deserves a comment. Up until now, there were only three images of Giovanni Battista Guccia known: a photograph taken at a photographic studio in Palermo, kept in the Archive of the Circolo Matematico di Palermo; a similar photograph that Guccia dedicated to Volterra on the occasion of the 1914 celebration honoring Guccia as founder of the Circolo Matematico di Palermo, kept in the Biblioteca dell'Accademia Nazionale dei Lincei in Rome (Fig. 1); and a portrait by the renowned Italian painter Ettore De Maria Bergler, kept in the Dipartimento di Matematica e Informatica of the Università degli Studi di Palermo (Fig. 7.7). They all show Guccia at an older age, and their similarity suggests that the painter used the photographs for the portrait. This was the situation until March 2016 when the authors of this book exploited the connection between the Guccia and the Tomasi families. They contacted 82-year old Cesare Crescimanno, great grandson of the Prince of Lampedusa, who was married to the sister of Giovanni Battista Guccia's father.[5] The Crescimanno family photo album contained a photograph of young Giovanni Battista (Fig. 2.1), probably at the time when he was studying at the university, two photographs of his sister Carolina, and a photograph of a painting of his parents, Giuseppe Maria (Fig. 1.4) and Chiara (Fig. 1.5). In the Epilogue, we explain the reason for the lack of images, and, in general, memories, of the Guccia family.

On October 29, 2014, a celebration of the centennial of the death of Giovanni Battista Guccia was organized at the University of Palermo. The chairman of the Dipartimento di Matematica e Informatica, Camillo Trapani, and the president of the Circolo Matematico di Palermo, Pasquale Vetro, presided over the celebration. The program of the event included the presentation of the portrait of Guccia after its restoration by the Dipartimento dei Beni Culturali (Fig. 7.7); a lecture on the mathematical works of Guccia by the president of the Unione Matematica Italiana,

[5] A. Vitello, Giuseppe Tomasi di Lampedusa, Sellerio, 2008, Palermo, Albero genealogico.

Ciro Ciliberto; a lecture on the history of the Circolo Matematico di Palermo by Aldo Brigaglia; and the public presentation by Benedetto Bongiorno and Guillermo Curbera of their findings on the origins of the Guccia family, the links of Giovanni Battista Guccia and the Tomasi family, and their consequences for the formation of the scientific interest of the young Giovanni Battista Guccia.

Palermo, Italy
Sevilla, Spain
April 2017

Benedetto Bongiorno
Guillermo P. Curbera

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Chapter 1
Background

This chapter is devoted to the background of Giovanni Battista Guccia. It is organized into four concentric circles: Sicily and Palermo, the importance of astronomy in early nineteenth century Palermo, the origins of the Guccia family, and the early influences on the young Giovanni Battista. Guccia was Sicilian-born and lived all his life in Palermo. These two facts over-influenced his life course. Thus, a short account of the history of Sicily is presented.[1] Giuseppe Piazzi's discovery of the asteroid Ceres at the beginning of the nineteenth century had an immense impact on science and society. Piazzi's discovery was especially significant in Palermo, since he discovered the asteroid in the Palermo Observatory. This is relevant to our story, since it influenced the Prince of Lampedusa and hence his young nephew Giovanni Battista. To understand this development, we present a brief summary of the situation of astronomical knowledge before Piazzi. With respect to Guccia's family origins, the first family group carrying the name Guccia is found in the early eighteenth century in Palermo. Details from this family genealogy provide insight into the origin of the family's fortune, way of life, and character, all of which greatly influenced Giovanni Battista in his youth. Finally, we end the chapter by describing how the practical and business-oriented atmosphere of the Guccia family interwove with the astronomical activity of Giovanni Battista's uncle, the Prince of Lampedusa, in the education of Giovanni Battista.

[1]We mostly follow the classical works by Denis Mack Smith FBA *Medieval Sicily: 800–1713* and *Modern Sicily after 1713,* Chatto & Windus, 1968, London. Other recent texts have also been used for particular facts, mostly F. Renda, *Storia della Sicilia dalle origini ai giorni nostri*, 3 vol., Sellerio, 2003, Palermo.

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Fig. 1.1 Map of Sicily. Courtesy of the Norman B. Leventhal Map Center at the Boston Public Library

1.1 Some History

The Mediterranean Sea is divided into its Western and Eastern parts by the island of Sicily. In the 1st century the Greek geographer Strabo described it in this way:

> Sicily is triangular in shape; and for this reason it was at first called "Trinacria," though later the name was changed to the more euphonious "Thrinacis." Its shape is defined by three capes: Pelorias, 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, two of them are moderately concave, whereas the third, the one that reaches from Lilybaeum to Pelorias, is convex; and this last is the longest, being one thousand seven hundred stadia in length, as Poseidonius states, though he adds twenty stadia more. Of the other two sides, the one from Lilybaeum to Pachynus is longer than the other, and the one next to the strait and Italy, from Pelorias to Pachynus, is the shortest, being about one thousand one hundred and thirty stadia long. And the distance round the island by sea, as declared by Poseidonius, is four thousand stadia (Fig. 1.1).[2]

In size, Sicily is almost a third of the island of Ireland. It is mostly hilly and mountainous, especially on the northern coast. On the Eastern coast, Mount Etna,

[2]Strabo, *Geographica,* Book VI, Chapter 2, Section 1.

the largest active volcano in Europe, stands 3,300 meters above sea level. A massive sulfur vein runs across the island, from Southwest to Northeast. Winters are mild and rainy, but summers are extremely hot and dry. The central and southwestern parts of the island are practically without any forests. Sicily is a prime example of anthropogenic deforestation, which began during Roman domination, when the turning of a naturally fertile island into an agricultural region led to a severe decline of rainfall and the drying of rivers.

Historian H.G. Koenigsberger wrote: "If Gibbon's famous aphorism, that history is the story of the crimes and follies of mankind, has any truth, then this will surely be found in the history of Sicily during the last thousand years."[3] Sicily's location in the center of the Mediterranean Sea invited all ancient civilizations passing by to stop, settle and leave their imprint. First was the visit of the Phoenicians around 900 BC. Later the Greeks arrived in 750 BC and established colonies, the most important being the coastal city of Syracuse in the southeastern part of the island. With the arrival of the Greeks, Sicily's destiny was joined to that of the South of Italy, creating the so-called Magna Graecia where the Pythagorean School flourished. The Greeks brought to the island profitable agriculture with olive groves and vineyards, as well as a vibrant culture and a rich religious tradition. While the Greek colony of Syracuse controlled much of Sicily, there were a few Carthaginian colonies in the west of the island. Greece and Carthage, two expanding naval and commercial empires in the Mediterranean, eventually clashed, and their conflict escalated into the Greek-Punic Wars. The wars lasted several hundred years, and finally ended when the Roman Republic annexed Sicily as the first Roman province outside of the Italian Peninsula. The Second Punic War between Rome and Carthage, from 218 to 202 BC, ended the Carthaginian presence in Sicily, as well as the life of Archimedes in the siege of Syracuse. For seven hundred years, Sicily remained a Roman province, and became an important part of the republic and later of the empire. Sicily served as Rome's granary, and this activity started and accelerated the island's deforestation process. Despite this long period of Roman domination—and some attempts under the first emperor Augustus to introduce Latin as the island's language—Sicily was never completely Romanized, and preserved its ties to Greek culture.

Christianity first appeared in Sicily in the third century AD. Before Emperor Constantine the Great issued the Edict of Milan in 313 establishing religious toleration for Christianity within the Roman Empire, a significant number of Sicilians had been martyred. Christianity spread rapidly in Sicily over the next two centuries. For Sicily, the fall of the Western Roman Empire in the year 476 with the deposition of the last emperor was followed by a sequence of invasions and changes of rulers: first the Vandals, then the Ostrogoths, and finally the Byzantines. For three centuries, Sicily was under the rule of the Greek-oriented Byzantine Empire based in Constantinople.

[3]H.G. Koenigsberger, *review of "A History of Sicily: Medieval Sicily 800–1713; Modern Sicily after 1713" by Denis Mack Smith.* The English Historical Review, 85, no. 336 (1970), pp. 560–562.

The end of Byzantine rule came via the military forces of the Muslim Arabs, who entered Sicily in 827. The Emirate of Sicily was subsequently founded in 831. The Arabs brought land reforms, improved irrigation systems, and the expansion of small farms to Sicily. New crops were introduced to the island, such as oranges, lemons, pistachios and sugar cane. As a result, agricultural productivity increased substantially. Palermo was the capital of the Emirate. Situated on a northern coastal plain known as the Conca d'Oro (so named for its abundant production of citrus fruits), Palermo had first been a Phoenician colony, then the Greek city of Panormo, and later a Carthaginian seaport. Under Arab domination it became a large and wealthy city, the second largest city in Europe,[4] smaller only than Cordoba, the capital of the Muslim Caliphate in Spain. The Muslim conquest was rather tumultuous, however, and it took over a century for them to gain control of the full island. Sicilians of Byzantine origin, especially in the eastern part of the island, continued to revolt even after the Muslim victory. During this period, Sicily was a religious and cultural mixture of Muslims, Greek Orthodox Christians and Jews. The Emirate lasted two centuries.[5]

The twelfth century is mythical in the memory of Sicilians.[6] During the previous century, Norman mercenaries from northern Europe started to participate in political quarrels between the lords in the south of mainland Italy. Eventually the Normans took over the whole area below the Papal States, which included conquering Sicily from the Arabs to form the first kingdom of Sicily. This Norman kingdom became a prosperous and tolerant state that appreciated the pre-existing culture of the island, and allowed each of its constituent communities to keep their cultural identity. The influence of Muslim culture remained strong, and the Norman kings even dressed like the previous Muslim emirs. Palermo remained the capital under the Normans, and became an important cultural center, attracting artists and scholars from all over the Mediterranean. As we will later see, Palermo became (along with Toledo in Spain) an important center for the translation of Greek philosophy and science into Arabic and Latin. Strong immigration from Northern and Central Italy during this period brought immigrants who practiced Catholicism and spoke Latin, leading Sicily to become more Romanized, with Latin becoming the dominant language, and Roman Catholicism the ascendant religion.

After a century, the Norman dynasty, which had been so close to the heart of Sicilians, extinguished. The next century was consumed by disputes among the German Hohenstaufen dynasty—the rulers of the Holy Roman Empire—, the Pope, and the French Angevins from the House of Anjou over the control of Sicily. The popular insurrection against the French ruling in the so-called Sicilian Vespers ended this turbulent thirteenth century, and started a less agitated period of two centuries of uneventful rule by the Spanish crown of Aragon. The political tranquility was counterbalanced by the appearance of the Black Death plague.

[4] O. Cancila, *Palermo,* Editori Laterza, 1988, Palermo.

[5] D. Mack Smith, *Medieval Sicily: 800–1713,* Chatto & Windus, 1968, London, section 1.

[6] *Ibid.*, sections 2 to 4.

In 1347, Sicily was one of the entry points of the disease into Europe. The disease was said to have halved the population of the island.

At 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.[7] 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. A far away and small part of a large and widespread empire, Sicily remained largely forgotten and became somewhat ungovernable by the Spanish governors. Earthquakes in 1542 and 1693, a return of the Plague, and recurring pirate raids also had a devastating effect on the population. The end of the Habsburg Spanish Empire was declared in 1713 in the Treaty of Utrecht. As a result, control of Sicily was assigned to the House of Savoy;[8] then transferred to the Austrian Habsburgs;[9] and finally to a prince from the Spanish Bourbon family.[10] The King Don Carlos of Bourbon established his court in Naples, now united again with Sicily, and completely forgot about the island. Sicily was ruled by four different dynasties in three decades, but Spain's influence remained strong: Spaniards continued to own large parts of the island, and Spanish continued to be the language of official documents. However, a deep change was slowly taking place: by the mid-eighteenth century, Italian cultural influence was becoming stronger. Consequently, the Italian language became increasingly common (alongside the Sicilian dialect). A clear example of this Italianization of Sicily can be seen in the annual opening speeches in parliament: in 1738, the viceroy Bartolomeo Corsini delivered it in Spanish, while in 1741 the same viceroy used Italian.[11] Don Carlos was succeeded by his son Ferdinand (IV of Naples, III of Sicily and I of the Two Sicilies) who reigned for the next sixty-six years. Meanwhile, the links binding Sicily to Italy continued to develop.

Historian Denis Mack Smith is blunt when describing the Sicilian economy at the time: "The middle class, to the small extent that one existed, remained professional and bureaucratic, rather than commercial or industrial, while the local leaders of society lived off their rents and nourished a resolute prejudice against trade."[12] Moreover, "Sicilian landowners seemed to accept without question that debts need not be paid and that productive work was undignified."[13] Meanwhile, the French Revolution and Napoleon's First Empire shook the European continent. In 1799 Napoleon took over Naples, forcing King Ferdinand to retreat to Sicily. There, with the aid of British naval protection, Ferdinand resisted Napoleon's attacks and eventually regained Naples. However, the British backing had a price: the imposition

[7] *Ibid.*, section 10.

[8] D. Mack Smith, *Modern Sicily after 1713,* Chatto & Windus, 1968, London, section 24.

[9] *Ibid.*, section 25.

[10] *Ibid.*, section 27.

[11] *Ibid.*, p. 263.

[12] *Ibid.*, p. 373.

[13] *Ibid.*, pp. 373–374.

of a constitutional monarchy. Thus, a parliament with real powers was formed and feudalism was abolished. These reforms were short-lived, however, and the old system returned to the so-called Kingdom of the Two Sicilies, which united Sicily and Naples. Popular rebellions against the Bourbons occurred in 1820 and 1848, but were quashed, with some effort. Finally, in 1860 Giuseppe Garibaldi defeated the Sicilian armies and later took Naples, marking the end of the Kingdom of the Two Sicilies. In the same year, the newly founded Kingdom of Italy annexed Sicily and Naples.

The Unification of Italy, known as "Il Risorgimento", involved a centralized development effort that affected the new country unevenly. Northern Italy was already involved in industrial and agricultural modernization, which was largely aided by infrastructure projects sponsored by the new political regime. In the South, the situation was different. Despite the new regime's initial intentions to remain sensitive to Sicily's local culture, Piedmont officials proved to be rigorous and insensitive. Governing officials communicated poorly with Sicilians, and felt the cultural distance as a difference of civilizations. They believed that there were no conditions for a peaceful settlement, and declined the responsibility of acting as initiators and guarantors of a fair new order. As a consequence, they intended to govern the island in a reactionary way.[14] After centuries of backwardness and illiteracy, bureaucracy and corruption, inefficient agriculture and abandonment of lands, Sicilians felt that these changes were impositions from the government in the wealthy North, who used military occupation to enforce tax increases and indirectly impoverished the island by removing internal customs duties. The resentment grew even stronger as centralization brought the opposite of the desired—and promised—autonomy.[15]

Is there an explanation for Sicily's longstanding backwardness? Or, rather, an explanation that is more scientifically based than one blaming fate or the natural inclinations of Sicilians? A historically established fact is that Sicily flourished under devoted and effective rulers. This occurred during Greek colonization, when Syracuse became one of the most important commercial and cultural cities in the Mediterranean Sea, and during the Emirate rule, when Palermo blossomed into a city of several thousand inhabitants. Sicily flourished most under the Norman kings, whose fair and wise leadership generated economic wealth and social consensus among a diverse society of Byzantine, Arab, and Norman cultures.

After the fourteenth century, however, Sicily suffered as a forgotten part of larger political entities that left Sicily to be ruled by the local aristocracy. The Sicilian aristocracy originated from the series of conquests of the island. Every conqueror granted his leading warriors land to settle and cultivate. Landlords would administer justice, both civil and criminal, in their feudal estates. Marriages were carefully planned to keep estates intact; intermarriages between cousins or uncles and nieces

[14]F. Renda, *Storia della Sicilia dalle origini ai giorni nostri*, vol. 1, Sellerio, 2003, Palermo, pp. 186–187.

[15]D. Mack Smith, *Modern Sicily after 1713, op. cit.,* p. 445.

were favored in order to prevent the loss of wealth through the division of property. This expedient helped to maintain the predominance of the aristocracy. Until the seventeenth century, the aristocracy contributed to the development of agriculture and the foundation of towns. In the eighteenth century, however, there was a change. Many properties were neglected, and were left for hunting, grazing and wood supply. The nobility lacked any practical interest in agriculture, even though agriculture was the source of its wealth. An aristocrat remaining in his estates and devoted to agriculture could incur the disapproval of his peers. Many aristocrats resented any economic responsibilities and were indifferent towards earning money. They became absentee landlords attracted by the glamour of the court of the Viceroy and the social life of Palermo. However, life in a luxurious palace or villa in Palermo was expensive. Despite their power, most of the aristocrats were living on credit, and some of them were quite poor. Large debts accumulated from inefficient farming, inability to administer large estates, or through family lawsuits over inheritances that would carry on for years. In the nineteenth century, the nobility began to mortgage their estates and hand over their management to an emerging social class, the so-called *gabellotti*. The gabellotti in turn rented small properties to poor farmers, and hired armed groups, composed of thieves and bandits, to guard the land. The gabelloti gained extra revenue by extorting the farmers and shepherds with the help of these armed groups. The profits earned from the soil did not go back into the land; they went into the towns for the building of palaces and churches. Meanwhile, country roads were neglected and the farming community was abandoned to bandits and malaria.

One noble Sicilian family plays an important role in our story.[16] At the end of the sixteenth century, Mario Tomasi arrived in Sicily with the Spanish Viceroy Marcantonio Colonna, with whom he had fought in the Battle of Lepanto against the Ottomans. Legend traces the Tomasi family origins to a Byzantine prince named Thomas, known as "the leopard," whose sons fled from Constantinople in the mid-sixth century for Italy, where they were called "the Thomasij," that is, the sons of Thomas. Mario Tomasi entered the Sicilian aristocracy by marrying the daughter and only heir of the Baron of Montechiaro (near Licata, in the province of Agrigento) and Lord of Lampedusa, a small island—20 square kilometers—between Sicily and Africa, which was given to the Barony of Montechiaro by Alfonso the Magnanimous, king of Aragon, in the fifteenth century.

Mario Tomasi had twin grandsons, Carlo and Giulio, who were given a broad humanistic and ecclesiastic education. They founded the city of Palma, in the barony of Montechiaro, and Carlo was named the Duke of Palma by King Phillip IV of Spain. Some years later, after a mystical experience, Carlo gave up the title of Duke to his brother Giulio, and joined the Theatine religious order in Palermo. He later moved to the seat of the order in Rome. Carlo was a man of great wisdom, and published many theological studies. His brother Giulio transformed his palace into a Benedictine monastery, and built another palace for himself. He also built many

[16] A. Vitello, *op. cit*., pp. 48–52.

churches, including the magnificent baroque cathedral of Palma. Giulio added to his noble titles that of Prince of Lampedusa.

The Tomasi brothers were not only devoted to religion. In addition to religion, the Tomasi brothers were also fond of scientific inquiry. For more than twenty years they hosted on their property the Sicilian astronomer Giovanni Battista Hodierna, a Roman Catholic priest. Hodierna was an enthusiastic follower of Galileo's physical theories at a time when adhering to the astronomical theories of Galileo was a dangerous option. Hodierna studied planets, satellites and nebulae with a telescope, and had some correspondence with the Dutch scientist and astronomer Christiaan Huygens. The Tomasi brothers also funded Hodierna's scientific publications.[17]

Giulio Tomasi married the Baroness of Falconeri and had four daughters and two sons. All four daughters became Benedictine nuns; one of them was declared Venerable a century later. In 1661, the Pope granted Giulio and his wife a divorce so that they could lead religious lives: Giulio became "Il Duca Santo", the Saintly Duke, and his wife "Suor Maria Seppellita", Sister Mary "the Buried". The eldest son, Giuseppe Maria, had a mystical vision at the age of fifteen similar to that of his uncle Carlo, gave up his aristocratic title and joined the Theatine order. He became a cardinal in 1712, was beatified in 1803, and was declared a saint in 1986. The second son, Ferdinando, was also very religious; he would join religious processions in the streets, wash the feet of the poor, and was very generous, especially in times of famine. He was known as "Il Principe Santo", the Saintly Prince. He died very young, leaving a one-year-old son, Giulio, who, following his father's footsteps, became very devoted and died young, leaving—after marrying his cousin—a one year old child named Ferdinando Maria.

The beginning of the eighteenth century and the influence of Ferdinando Maria brought change to the Tomasi family. They moved from Palma di Montechiaro to Palermo and became involved in the social and political life of the country. Ferdinando Maria participated in many activities, from politics and administration to arts and literature, becoming a patron of many artists. He was appointed Knight of Malta, Grandee of Spain of first class, Gentleman of the Chamber of Charles VI, among other honors. The Tomasi family flourished through the next two generations with Giuseppe Maria and Giulio Maria. They bought a magnificent palace, later called Palazzo Lampedusa. Giulio Maria tried to profit from the island of Lampedusa. In 260 years, the Tomasi family had obtained nothing from that inhabited and barren land. In 1800, a long-term lease for the enormous annual rent of 300,000 ducats was agreed. However, the rent was never paid.

The social upheaval caused by the French Revolution had severe economic consequences on the Tomasi family. In 1823, the duchy of Palma went under judicial administration. When the son of Giulio Maria, Giuseppe Tomasi, died in 1831 his widow, who was from a Neapolitan middle-class family, was able to avoid bankruptcy by selling the island of Lampedusa in a wisely maneuvered international

[17]I. Chinnici, *Giovan Battista Hodierna e l'astronomia,* Giornale di astronomia, 34 (2008), pp. 10–17.