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Famous Astronomers: Giuseppe Piazzi

The First Asteroid

Aira Astralis

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Conclusion

This free sample contains the Introduction and Chapter 1. The complete book contains the full contents above.

Introduction

On the first evening of the nineteenth century, a monk on a Sicilian rooftop saw a point of light that was not on any of his maps, and the solar system grew by one member before the month was out. The man was Giuseppe Piazzi, a Theatine priest, a mathematician, a maker of the most accurate star catalog of his age, and the story of that single evening, what it took to be ready for it, what almost destroyed the discovery afterward, and what the finding did to astronomy forever after, is the story this volume tells. He is a figure of a particular kind, the kind history tends to under-credit, because his largest work was a book of numbers, a catalog of more than seven thousand stars, and books of numbers do not become legends the way rebellions and rockets do.

The reader should know at the door what kind of discovery Ceres turned out to be, since the answer changed twice after the man died, and neither change was his fault. In 1801 it was hailed as a planet, the fifth one, a tidy fit in the gap between Mars and Jupiter that astronomers had been suspecting held something. Half a century later, when its siblings began to crowd the sky, it was demoted to the head of a new class, the asteroids, and by the twenty-first century it had been re-promoted to the title of dwarf planet, the nearest and smallest of them.

Piazzi lived through none of these reclassifications except the first, and a biography can therefore be honest about the irony, that the discovery he called a planet was a planet, then was not, then became something that a modern reader's textbook recognizes again, and the object never changed once during the whole performance, only the words did. The reader deserves to hear, plainly and before the road opens, why this particular life is worth a whole volume in a series that has already given shelves to the great theorists and the great observers, and the answer is that Piazzi is the standard-bearer of a kind of science the legends usually skip.

He won no prizes for ideas, proposed no cosmology, fought no famous duels of theory, and made his entire reputation out of the least glamorous act in astronomy, the act of measuring where things are and writing the numbers down so that others can trust them, and the series' claim, which this biography will defend chapter by chapter, is that the measuring kind of science built the modern sky as surely as the theorizing kind did, and deserves its biographies just as much. The volume also carries a quiet warning for the reader who came for the drama, since the famous evening supplies exactly one of the sixteen chapters ahead, and the other fifteen are made of the material drama usually skips, the schools, the instruments, the budgets, the errors, and the decades, and the warning is fair because the skipping is what the popular history of

science does, and the result is a public that believes discoveries are moments.

This biography believes otherwise, and the reader is invited to test the belief against every page that follows, since the moment of 1 January 1801 was won by twenty years of Palermo mornings before it, and could have been lost by one careless ledger after it, and the life, not the moment, is the subject. The introduction ends with the volume's smallest promise, the one the series makes in every book and keeps in every book, that the pages ahead will treat the reader as a capable adult and a curious child at once, explaining nothing twice, hiding nothing technical that matters, and assuming no prior astronomy beyond the everyday sky.

The promise is easy to keep for a subject like this one, since the science of position is arithmetic and patience, and both are human possessions already, and the reader who owns a ruler and a notebook owns the whole toolkit of the first half of the road, and the remaining chapters, which describe the spacecraft and the statistics, hand over their own tools on arrival, and the road is open, and the walk begins now.

The volume follows the series' fixed road, and the walker should be told its shape before setting out. The chapters open with the life, the birth in the mountains north of Milan, the religious order that educated him, the professorships in mathematics, the commission from a king, and the rooftop in Palermo, then the evening itself, the forty-one nights, the disaster of the lost object, and the rescue by a young German mathematician whose calculation is now taught in every statistics course on Earth. After the discovery the road turns to the science, the instruments, the catalog, the context of rival Europe, the modern verdicts, and the meaning of a life spent measuring, and it closes with the standard series fare, the record, the mysteries, the future, the trivia, and the significance.

The road is walked at a biographer's pace rather than a textbook's, each technical fact arrives tied to a year, a city, or a machine, and the walker who reaches the end will know not only what one monk found on a rooftop but how a fact of that age was won, defended, nearly lost, and finally placed in the record.

Chapter 1: The Discovery of Giuseppe Piazzi

The chapter title is the series' standing joke and this volume keeps the custom, since Giuseppe Piazzi was not discovered by anyone but made, the way a precision instrument is made, by decades of quiet work, and the making began on 16 July 1746 in Ponte in Valtellina, a mountain valley town in the northern Italian Alps, where he was born into a family of comfortable means.

The valley in that year belonged to the Grisons, the Grey Leagues, a

Swiss-aligned territory, and the borderland fact is worth the paragraph, since the boy grew up Italian-speaking under a flag that was not Italy's, and his later career would carry him the length of a peninsula that did not yet exist as a country, through capitals, universities, and kingdoms that were each separate worlds.

No document survives that records how he learned his mathematics, and the honest biography says so plainly. The earliest accounts of his youth all agree that he studied with the Theatines, a Catholic religious order founded in the sixteenth century, and that the order's schools were serious about mathematics in a way few institutions of the time were, and the reader can draw the certain conclusion that somewhere in those classrooms a boy of unusual appetite met the subjects that would feed him for eighty years. He joined the order in time, taking the habit of a Theatine, and the combination that shaped his public identity for life, priest and mathematician, was not unusual for the age but was carried by him further than almost anyone, since there is no record of his mathematics ever conflicting with his vows, and no record of his vows ever slowing his mathematics.

The order moved him, as orders do, and the moves constitute his education. He taught philosophy and mathematics at the order's colleges, first in the territories of his birth and then, decisively, in the south. Genoa held him for a time, then Malta, where he taught mathematics to the knights, and then Rome, and the southward drift ended in Sicily in the 1780s, when the island's kingdom, under the Naples branch of the Bourbon monarchy, was assembling a modern university and wanted serious men. Piazzi arrived to teach mathematics at Palermo, and Palermo, as the reader will see for the rest of this volume, was where the whole story happened, the one place on Earth where a Theatine mathematician could be handed a kingdom's money and told to build an observatory.

The man who arrived was in his late thirties, and the portrait that survives from the period shows what the colleagues described, a tall, energetic, occasionally sharp man with dark eyes and a thin mouth, quick to argue,

quicker to laugh, famous in later years for keeping the observatory's discipline as firmly as he kept his own studies. The descriptions matter to the discovery this chapter is named for, since the man being described is exactly the kind of man who decides, on arriving at a fine new university in a city with no observatory, that the lack is intolerable, and who then spends the next decade fixing it. The discovery of Giuseppe Piazzi, in other words, was the discovery of a vocation for institutions, the rare gift of being able to see that a kingdom could afford an observatory and that he was the man to make it happen.

The decade of making is the next part of the discovery. Piazzi went first to Naples and the court of Ferdinand, the young king who ruled Sicily and Naples from Naples, and made the case for a Sicilian observatory, the argument being that the island's latitude gave it access to a sky that mainland Europe could not see as well, and that the navigation of the kingdom's fleet, the timing of its calendars, and the prestige of its university all argued for instruments on the southern roof of Europe. The king, persuaded, agreed to fund it, the viceroy of Sicily smoothed the local path, and in 1789 the foundation was laid, with Piazzi directing the construction personally for two years, and in 1791 the new Royal Observatory of Palermo opened its doors, and Piazzi took the directorship at the age of forty-four, which the reader should notice was the beginning, not the middle, of the story, since the famous discovery was still a decade away.

The final piece of the discovery is the instrument that arrived the same decade, and the chapter should introduce it now, since it is the co-star of everything that follows. Jesse Ramsden, the greatest instrument maker of the age, an Englishman whose dividing engines could graduate a circle with an accuracy no rival matched, was commissioned to build Palermo an altitude and azimuth circle five feet across, and the machine, finished in the 1790s and installed in Palermo under Piazzi's own testing, could measure a star's position with a precision the world had hardly seen. The instrument and the man suited each other perfectly, since both were over-built for the era's standards, both required patience to get the best from, and both were about to make, on a January evening in 1801, the observation that opened the chapter this biography is really about.

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ABOUT THE AUTHOR

Aira Astralis is a science writer specializing in astronomy and space exploration. Her work spans the full breadth of humanity's relationship with the cosmos -- from the earliest naked-eye observations to the engineering marvels of modern space missions.

Her books are built on a foundation of primary sources: peer-reviewed research, mission archives, and direct engagement with the scientific community. She writes for readers who want to understand not just what we know about the universe, but how we came to know it.

She believes that the most important frontier is not out there but in the gap between what scientists discover and what the public understands. Her books exist to close that gap.