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Famous Astronomers: Charles Messier

The Catalogue of Nebulae

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 night of January 21, 1759, a young clerk of the French Navy stood on an observatory tower in Paris with a small telescope, following a predicted path across the winter sky, and found what he had been told to look for: the return of Halley's Comet, back from its seventy-six-year journey, right where the mathematics said it would be. Charles Messier was twenty-eight years old, a Lorraine-born draughtsman who had been handed a telescope instead of a career, and the recovery of Halley's Comet was the first public proof of a prediction made a generation earlier by an astronomer who did not live to see it kept. A German farmer and amateur astronomer, Johann Georg Palitzsch, had found the comet a few weeks earlier, on Christmas night of 1758, and history gives him the priority. But the observation confirmed something in Messier that never changed afterward: that the sky could be searched systematically, and that a patient man with modest instruments could find things in it that mattered.

What followed is one of the odder and more productive careers in the history of astronomy. Messier became the comet ferret, so nicknamed by King Louis XV himself, the most successful comet hunter of his century: thirteen comets by the standard count carry his name as discoverer, and up to twenty when shared discoveries are counted, found in a sweep of the sky that ran from 1760 to 1798. He worked from the tower of the Hotel de Cluny in Paris with small refractors of a few inches' aperture, kept a daily observing journal for more than six decades, and survived, at the cost of his health and his wife and most of his money, the fall of the monarchy that employed him and the revolution that followed it.

The work that carries his name, though, is the thing he built along the way. While hunting comets he kept running into fixed, faint, diffuse patches of light that looked, on a first night, exactly like a new comet, and wasted his nights. The great six-tailed comet of 1744 had drawn him into astronomy as a boy; the annular eclipse of 1748 fixed him there; and in August 1758, while checking the path where Halley's Comet was expected, he ran into the first of these patches in Taurus and carefully recorded it, with its position, so that it could not fool him again. That patch is known today as the Crab Nebula, the wreck of a supernova recorded by Chinese and Japanese astronomers in the year 1054, and in Messier's records it is the first entry of the catalog that made his name permanent: the Messier objects, the list of one hundred and ten nebulae and star clusters that every amateur astronomer on Earth learns first.

The catalog was built as an anti-list, a collection of things not to look at, and it

became the opposite: the standard tour of the northern deep sky, the first thing a beginner learns to find and the last thing an old observer still visits. The Pleiades, the Orion Nebula, the Andromeda Galaxy, the Hercules Cluster, the Ring Nebula, the Whirlpool: the list that was assembled to be dismissed became the list that is hunted, photographed, marathoned, and loved, and its numbers, M1 through M110, are still the names by which these objects are known in every observatory and every star party on the planet.

A word on method, before the story begins. The record of Messier's life is unusually public and unusually well anchored: his own catalogs printed in the Connoissance des Temps, the annual astronomical almanac of the French Academy of Sciences; his observing journals and correspondence, much of it preserved in Paris; and two centuries of biography and catalog scholarship that have tested every entry, identified every lost object, and settled the counts. The numbers quoted here, the thirteen comets, the one hundred and three entries he published, the twenty-six contributed by his collaborator Pierre Mechanin, are the standard counts of that record; where the record leaves room for doubt, as it does in a few catalog entries and in the details of his later years, the doubt is marked and the account stays at the evidence level. The book keeps his own division in view throughout: what he observed and recorded, and what he merely supposed, because the first is the reason the second still matters.

This book tells the whole arc: the Lorraine childhood, the education by Joseph-Nicolas Delisle at the Navy's observatory, the ferreting years and the King's nickname, the night-by-night construction of the catalog, the partnership with Mechanin, the ice cellar fall that nearly killed him, the revolution that took his pension and his wife, the strange pamphlet that linked his comet of 1769 to the rise of Napoleon, and the modern afterlife of the list, from the observatory to the Messier Marathon. He hunted comets for kings and found the fixed sky instead, and the fixed sky, in his numbering, outlived every king he worked for.

Chapter 1: The Discovery of Charles Messier

Charles Messier was born on June 26, 1730, in Badonviller, a small town in the Lorraine region of eastern France, the tenth of twelve children of Nicolas Messier, a court usher, and Francoise Grandblaise. The family was of modest administrative stock, comfortable enough to educate the boys, poor enough that the deaths mattered: six of the twelve children did not survive childhood, and Nicolas Messier himself died in 1741, when Charles was eleven. The boy was taken up by an elder brother, a hygienist and administrator who kept the household together, and it was in this diminished but orderly Lorraine home that the first of the two childhood events that made an astronomer out of him took place.

The event was the great comet of 1744. In February and March of that year a bright comet, discovered independently by several observers and usually credited to Dirk Klinkenberg and to Jean-Philippe de Cheseaux, swung past the Sun and put on one of the strangest displays in the recorded history of the phenomenon: a broad fan of tails, described by contemporaries as six separate rays curving away from the head, visible in the evening sky across Europe and recorded in detail by Cheseaux himself. A thirteen-year-old boy standing in a Lorraine street watching a six-tailed comet hang over the western horizon does not forget it, and Messier said plainly, all his life, that this was the beginning. Four years later, on July 25, 1748, an annular eclipse of the Sun swept across his part of the world, the Moon a black disc ringed by fire, and the second anchor was set.

An interest is not a career. In 1751, at twenty-one, Messier was sent for by Joseph-Nicolas Delisle, a substantial figure in French science: the astronomer of the French Navy, professor at the College de France, keeper of the maps and instruments at the Hotel de Cluny, the Navy's establishment on the Left Bank of Paris. Delisle had known Messier's elder brother in the administrative world and needed a clerk and draughtsman, and the young man from Lorraine arrived in Paris in October 1751 into the middle of a working scientific institution. His official duties were the making and copying of charts, the drawing of fortifications, the clerical work of the Navy's map office. His education, however, was the real employment, and Delisle ran it personally: the keeper of the observatory taught the new assistant to use the instruments, to keep the disciplined records that the observatory's work depended on, and, above all, to observe.

The Delisle method was the whole foundation of what Messier became. Delisle had spent years in Russia building the astronomy of the St. Petersburg Academy, had returned to France with a taste for careful positional work, and

had a specific program in mind for his new assistant: comets. The mid-century was the era in which comet hunting turned from a gentleman's novelty into a systematic pursuit, because Edmond Halley, in 1705, had shown that the comet of 1682 was the same object as those of 1531 and 1607, and had predicted its return for late 1758 or early 1759.

By the early 1750s the countdown was the central public question of practical astronomy in Europe, and Delisle, with his Russian training in orbital computation, set his assistant to work on the search. He taught Messier to compute and plot the comet's predicted path across the sky, month by month, from the mathematics, and to sweep that path with the telescope, and to write down, every single night, everything that passed through the field: the instrument, the time, the position, the weather, the seeing.

Messier's first documented observation has nothing to do with comets, and everything to do with the discipline that would find them. On May 6, 1753, he observed the transit of Mercury across the Sun's disc from the Cluny observatory, and the entry in his journal, position, time, and circumstance in his own hand, is the first of tens of thousands. Delisle's brother, also in the household, kept the observational program running, and the young assistant was soon the establishment's most reliable pair of eyes, sweeping comets, timing eclipses, watching the passing objects of the solar system on a schedule. When the predicted window for Halley's return opened in 1758, it was the twenty-eight-year-old clerk who was assigned to the search, with Delisle's predicted path on his chart and the Navy's telescope on the tower.

The world knows what he found first, and it was not the comet. On August 28, 1758, while sweeping the region of Taurus where Delisle's computation sent him, Messier ran into a small, faint, comet-like patch above the southern horn of the Bull, and did the thing that separates the observer from the tourist: he checked whether it moved. Night after night the patch sat exactly where it had been, immobile among the stars, useless as a comet and unmistakable as something worth recording. He measured its position, wrote it down as a nebula that could be mistaken for a comet, and thereby, without knowing it, made the first entry of the catalog that carries his name. The patch is the Crab Nebula, the expanding wreckage of the supernova of 1054, and its modern designation, M1, is the first two characters of the rest of astronomical history.

The comet itself came to him at last on January 21, 1759, four weeks after Palitzsch's Christmas-night recovery in Saxony, news of which had not yet crossed war-torn Europe. Delisle's computed path, influenced by an error, had kept him looking in the wrong part of the sky for weeks after the comet was actually recoverable, and Messier's own recovery stands in the record as

independent and months late rather than first. He recorded the observation with complete honesty, as he always did, and the man who might have been remembered as the second finder of

Halley's Comet went on to become something else entirely: between 1760 and 1798, the most productive discoverer of new comets alive.

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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.