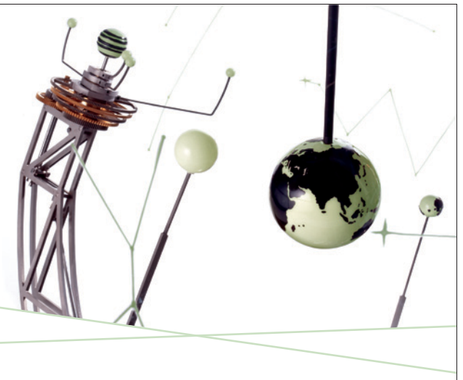
HEAVENLY OBSERVATIONS

PANERAI WATCHES **CELEBRATE TIME, SPACE AND GALILEO**

BY ROBERTA NAAS



The Jupiterium perpetual calendar clock

THE STUDY OF THE HEAVENS HAS BEEN GRAVITATING TOWARD THE CENTER OF HIGH-END WATCHMAKING, WITH TOP BRANDS UNVEILING COMPLEX ASTRONOMICAL WATCHES. For its part, Italian watchmaker Officine Panerai has launched several truly innovative astronomical timepieces over the past two years. It also recently assembled an impressive panel of world-renowned astronomers, hailing from top US research institutions, to talk about time and astronomy. The event, "Time & Space: A Look Back at the Clockwork Universe," centered on Italian inventor and astronomer Galileo Galilei and celebrated the 400th anniversary of his discovery of the moons of Jupiter.

It all took place late last year at New York City's prestigious Explorers Club. The 108-year-old private club with its rich history and rare artifacts on display is a treat to visit on any occasion, but it was made even more interesting by the great minds and great timepieces brought together by Panerai. Featured speakers included Dr. Owen Gingerich, professor emeritus of astronomy and history of science, Harvard-Smithsonian Center for Astrophysics; Dr. Anthony Aveni, distinguished professor of astronomy and anthropology, Colgate University; and Dr. Derrick Pitts, chief astronomer and planetarium director, Franklin Institute Science Museum.

THE SCIENCE

Drawing on their own specific areas of expertise, the scientists spoke about time's basis in astronomy, the ongoing investigations into time and space, the political and scientific environment Galileo operated within and the latest discoveries about Galileo, including an "Aha!" moment recently uncovered by Dr. Gingerich. It was just over 400 years ago that Galileo identified four moons of Jupiter, and confirmed Copernicus' heliocentric cosmology, using his then-novel and now-famous telescope. Today, just two of Galileo's self-built telescopes remain intact.

Of particular interest to those who approached the event from a watchmaking perspective was the story of how Galileo, using his own pulse as a reference, observed and measured the swinging of a chandelier. This humble experiment led to the development of the pendulum concept and, ultimately, to more accurate clockmaking.

Dr. Anthony Aveni, Dr. Owen Gingerich, Panerai NA president Rafael Alvarez and Dr. Derrick Pitts

Galileo's pendulum clock

TRIBUTE TO GALILEO

The evening culminated in a presentation of Panerai's most complicated instruments: two wristwatches and a geocentric perpetual calendar clock, each inspired by and dedicated to Galileo. The timepieces—L'Astronomo, Lo Scienziato and the Jupiterium clock—commemorate the Florentine origins shared by Panerai and Galileo. "We are pleased to be able to celebrate this 400th anniversary of Galileo's exceptional discovery in a way that also brings Panerai's watchmaking expertise to the forefront," states Frank Stalder, director of research and development for Officine Panerai.

Most impressive among the pieces is the made-to-order L'Astronomo (PAM 365)—the brand's most complicated watch ever. The 50-mm Luminor 1950 Equation of Time Tourbillon Titanio that is the L'Astronomo is truly a grand complication, with tourbillon, equation of time, indication of sunrise and sunset times for the collector's chosen city and a depiction of that same location's star map via a disc on the back plate. The tourbillon regulator turns on an axis perpendicular to the axis of the balance, and makes two rotations per minute. With three spring barrels, the manual-winding watch delivers power reserve of four days.

With all of those functions packed into Panerai's 375-part mechanical Caliber P2005/G (G for Galileo), one might expect the watch to be difficult to read. However, in true Panerai style, it is surprisingly clean and legible. Sunrise and sunset are indicated via cursors that run along numbered sectors—which vary with the seasons—on the inner bezel. Just 30 pieces will be made, each according to the specifications of its owner. And, unlike many ultra-complicated watches, L'Astronomo is water resistant to 50 meters. Once ordered, this watch requires about 18 months to complete and deliver.

Panerai's unique and visually complex Lo Scienziato Radiomir Tourbillon GMT Ceramica (PAM 348) is an appealing 48-mm black zirconium oxide ceramic piece with a skeletonized movement positioned within a fine mesh. Like the L'Astronomo, the patented watch features a tourbillon cage that turns on an axis perpendicular to that of the balance wheel and makes a complete rotation every 30 seconds. The caliber is the P.2005/S (S for

Panerai Lo Scienziato (PAM 348)

L'Astronomo (PAM 365) with tourbillon, equation of time and customized sunrise/sunset indication

AHA MOMENT

The date on which Galileo Galilei hit upon the realizations that precipitated a worldwide paradigm shift has been identified as January 13, 1610, according to new research by Dr. Owen Gingerich, professor emeritus of astronomy and history of science at the Harvard-Smithsonian Center for Astrophysics and a renowned expert on Copernicus, Keppler and Galileo. Analyzing Galileo's original notes, Gingerich concluded that he was observing the moon through an early telescope in January 1610 when he recognized that the small star-like bodies adjacent to Jupiter—points of light that seemed to change their positions night after night—were actually orbiting moons. It was a revelation that confirmed a then-radical—and heretical—heliocentric view of the heavens. Gingerich surmised that, on the 13th, when Galileo began recording his findings in Latin, the international language of science, the great scientist knew he had something important to share with the world. He published his findings shortly after this date.

Scienziato), comprised of 277 parts and 31 rubies. It offers six days of power reserve and GMT function with a 24-hour indicator at 3. This piece will also be made in extremely limited numbers.

The largest and the most unusual piece in the series is the Jupiterium, the first fully mechanical clock from the Neuchâtel *manufattura* of Officine Panerai. This museum piece was painstakingly developed over the course of two years. It is essentially an astronomical model, showing the Sun, the Moon, Jupiter and its satellites just as Galileo observed them; thus, the Earth is positioned in the center. Since the heavenly bodies, moving within a star-studded sphere, orbit in real time, it is also a perpetual calendar: the Moon rotates around the Earth once every 27.32 days; the Sun completes its circuit in 365.26 days; Jupiter moves around the sun every 11.8 years, and its satellites complete their orbits in due course. This complex perpetual calendar clock needs no correction until the year 2100. On the clock base, a traditional Panerai-style dial with long baton hour markers and luminescent hands indicates the time. It also displays the Jupiterium's power reserve—an incredible 40 days.

In March of this year, Panerai proudly presented the Jupiterium to the Museo Galileo in Florence, where it became part of the permanent collection. Now, thanks to Panerai, museum-goers and Galileo fans can visualize what the famous astronomer saw and contemplate the astronomical basis of time.

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L'Astronomo's Caliber P.2005/G with customized star map