

IN MEMORY OF PAOLO BRENNI (1954-2021)

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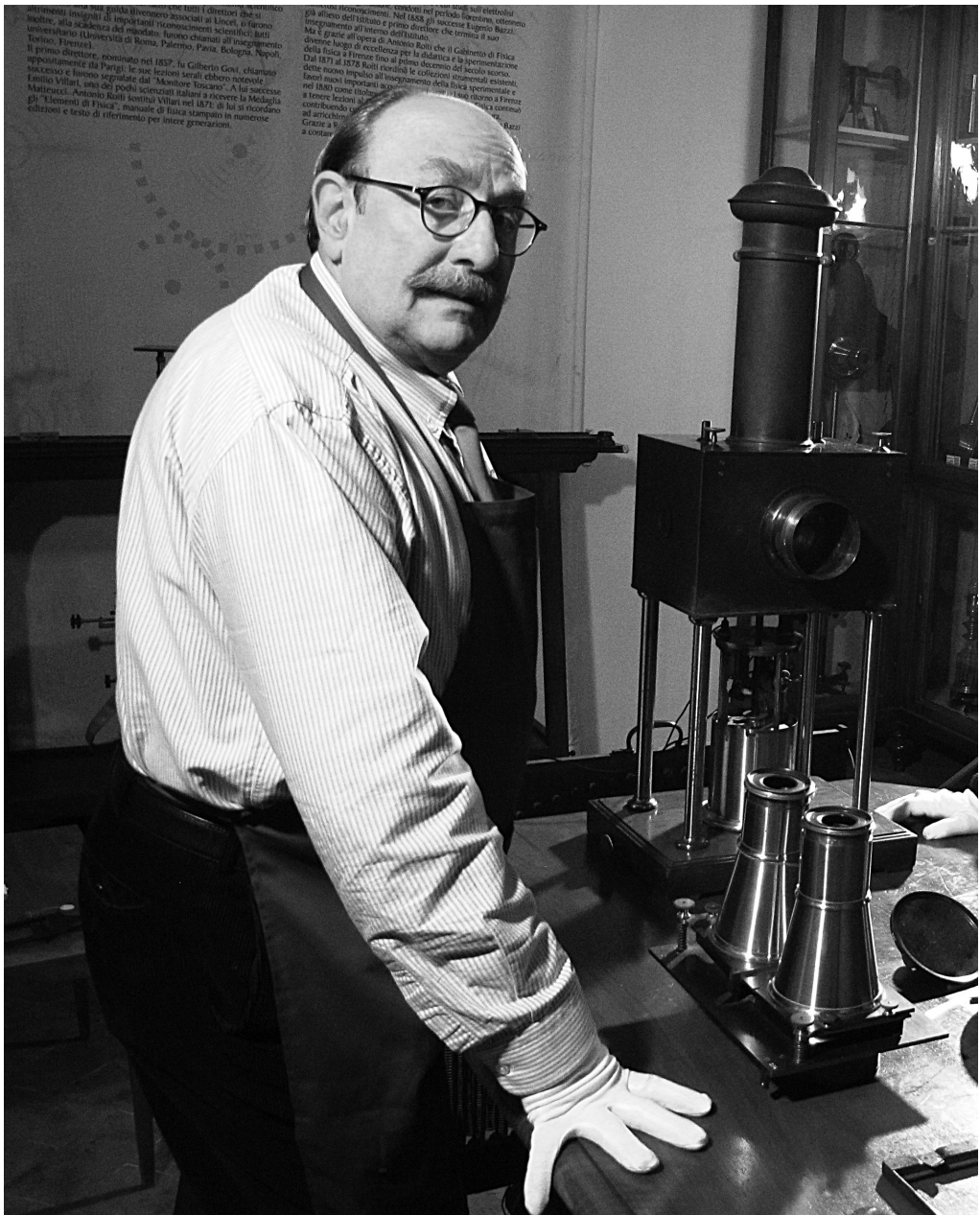
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...menti e per i più importanti associati ai Lincei, e furono
Madre, alla scuderia del mandato furono chiamati all'insegnamento
universitario (L'Università di Roma, Palermo, Pavia, Bologna, Napoli,
Torino, Firenze).
Il primo direttore, nominato nel 1857, fu Gilberto Gessi, chiamato
appuntamento alla Parigi. Le sue lezioni vennero ebbero notevole
successo e furono segretate dal "Mentore" toscano. A lui successe
Emilio Villar, uno dei pochi scienziati italiani a ricevere la Medaglia
Mantucci. Antonio Ratti sostituì Villar nel 1871 di lui si ricordano
gli "Elementi di Fisica", manuale di fisica stampato in numerose
edizioni e testo di riferimento per altre generazioni.

...già anni riconoscimenti. Vennero nel periodo fiorentino, ottenuto
già amico dell'istituto e primo direttore che terminò il suo
insegnamento all'interno dell'istituto.
Ma è grazie all'opera di Antonio Ratti che il Gabinetto di Fisica
divenne luogo di eccellenza per la didattica e la sperimentazione
della fisica a Firenze fino al primo decennio del secolo scorso.
Dal 1871 al 1878 Ratti diede alle condizioni strumentali esistenti,
dette nuove impulso all'insegnamento della fisica sperimentale e
fornì nuovi importanti apparecchi e collezioni di strumenti e
a tenere lezioni di fisica sperimentale. Il suo discorso a Firenze
nel 1880 venne pubblicato in un volume di 100 pagine con
contributo di Ratti e di altri scienziati. Il suo discorso a Firenze
ad arricchire il patrimonio scientifico del nostro paese.
Grazie a Ratti e a
a coeva

ANNA GIATTI * – SARA SCHECHNER ** – GIORGIO STRANO ***

IN MEMORY OF PAOLO BRENNI (1954-2021)

On the early morning of December 4th, 2021, members of the scientific instrument community and others received multiple phone calls and messages reporting shocking news: Paolo Brenni, one of the world's leading figures in the study, valorization, and restoration of historical scientific instruments had had a severe heart attack and died.

In the evening of December 3rd, Paolo returned home from a conference in Neuchatel. During the trip back, he looked unusually groggy and felt hungry. He ate a dish of pasta, went to bed, and during the night, felt extremely sick. His wife Andrea called for immediate help, but when the medics arrived at the Brennis' villa, it was already too late.

The appalling news quickly circled the globe, even to Antarctica. Having observed a total solar eclipse there that same day, one colleague could only sputter, "For ages, eclipses have portended the death of kings. Paolo was certainly a king of our field. This eclipse timed with his death seems to fulfill the old prophecies. I am devastated."

Paolo was born in Mendrisio, Switzerland, on March 20th, 1954. With a background in classical studies, he entered ETH Zürich, the Swiss Federal Institute of Technology. After a couple of years, he transferred to the University of Zurich where, in 1981, he obtained a degree in experimental physics with a thesis on nuclear magnetic resonance in Carbon-13 and Bromine-81 isotopes.

Over the next two years, he taught physics part-time at the Scuola Tecnica Professionale (a vocational school) in Lugano Trevano and then mathematics at the Liceo (a high school) in Bellinzona. It was during this period that Paolo attended a

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conference in Pavia of the newly established Italian Society of Historians of Physics and Astronomy (SISFA), where he met Gerald L'Estrange Turner (1926-2012), the great English expert on historical scientific instruments, and Fabio Bevilacqua, professor of physics at the local university. Turner awakened Paolo's interest in the study of the material culture of scientific heritage, especially the importance of old scientific instruments. Bevilacqua provided Paolo with his first project: the documentation, conservation, and physical reorganization of a collection of physics instruments in the Museo per la Storia dell'Università di Pavia (Museum for the History of the University of Pavia).

Able to speak four languages fluently (Italian, French, German, and English), and having an extremely positive character, Paolo made many friends and acquaintances, especially at first in Italy but soon worldwide. Within a decade, he was able to examine significant collections in Pavia, Como, Florence, Trento, and Rome, and become specialised in scientific and technological instruments from the beginning of the 18th century to the mid-20th century. He also developed his personal approach to these historical relics. His interest in them was not a manifestation of the so-called 'antiquarianism,' under whose spell the greater part of collectors and some scholars have fallen. Instead, Paolo felt it was essential to combine information found in old scientific books, user manuals, and trade or auction catalogues with understanding derived by the actual manipulation of the instruments. During his lifetime, Paolo eagerly looked for those forgotten books and manuals, and enlarged his private library with them. His manipulation of the instruments went far beyond a simple examination and cataloguing; it included disassembly, cleaning, restoring, re-using, and filming the historic instruments performing the jobs.¹ This method of mind and hand helped Paolo to explore the relationship of instruments to the history of science and culture, the workshop methods by which they were produced, and how they had been used by industry and the public.

This multi-faceted approach to old scientific instruments and his warm, generous nature made Paolo able to exchange vital information and make long-lasting friendships with individuals of any educational level (from amateur and student to university professor or museum curator) and in very different fields of study (from scientist to humanist). Usually, the flow of the information was unidirectional, from him to others, but Paolo had a knack of making anyone interested in the topic feel appreciated and respected. We all learned something in Paolo's presence and came away eager to learn more.

Around 1984, Paolo established a special connection with the Istituto e Museo di Storia della Scienza (IMSS, today the Museo Galileo) of Florence, directed by Paolo Galluzzi and curated by Mara Miniati. In addition to casting new light on many instruments relegated to museum storage, Paolo curated a specialist catalogue on mechanics.² Of greater significance, the collaboration led to Paolo's

¹ See BRENNI, 2021.

² BRENNI, 1993.

documentation, reorganization, and restoration of the physics collection of the Istituto Tecnico per Geometri “G. Salvemini” (formerly the Istituto Tecnico Toscano) in Florence. In 1987 it became the Fondazione Scienza e Tecnica (FST), directed by Francesco Gravina. Paolo’s devotion to this collection lasted more than thirty years. Working with Anna Giatti, Paolo was able to reconstruct the original display of the collection, even recovering the original 19th century cupboards for the exhibition. He identified and restored nearly 2,000 instruments. His output included detailed catalogues of the acoustical, optical, electrical, and magnetic apparatus that shared knowledge with fellow scholars and instrument curators.³ But the most wide-reaching activity at the Fondazione was the most pathbreaking one: Paolo was able to recover the tacit knowledge associated with the apparatus, which had faded away, and use it to re-enact the traditional classroom experiments and instrument demonstrations on camera with Anna. Getting from a description in a manual or article to a hands-on understanding of a real working instrument took enormous effort and repeated trial and error. Lost tacit knowledge was not easily gained. But Paolo was patient and able to energize the project with his contagious enthusiasm. Eighty-one stunning videos were produced and are available on YouTube.⁴ Paolo did another sixteen videos for the Liceo Paolo Sarpi in Bergamo.⁵ These are not only fascinating to watch, but also a remarkable asset for teaching and scientific instrument studies. They are the gold standard to which other curator-filmmakers aim.

While working primarily on the Fondazione Scienza e Tecnica collection, Paolo continued to be involved in many IMSS projects in collaboration with Mara Miniati. These included a course on scientific instruments and their conservation, a census of historical scientific apparatus in Tuscan schools and private collections, exhibitions, and various catalogues. Between 2008 and 2010, Paolo was a key member of the scientific committee that completely refurbished the permanent exhibition of the IMSS, which was renamed Museo Galileo at the opening. In particular, Paolo curated five galleries (XII to XVI) devoted to the Lorraine collection, consisting of apparatus purchased or commissioned by the Grand Duke of Tuscany Peter Leopold (1747-1792) and expanded in the 19th century.

Paolo’s achievements were recognized and endorsed with funding from the highest level. Paolo was a research fellow of the Italian National Research Council (CNR) from 1992 until his retirement in April 2021. During this period, he was appointed in Florence to the IMSS/Museo Galileo without interruption and to the

³ BRENNI, 1986; 1995; 2000.

⁴ FONDAZIONE SCIENZA E TECNICA FIRENZE, Florencefst YouTube site, <https://www.youtube.com/user/florencefst/videos>

⁵ LICEO PAOLO SARPI, BERGAMO, *I Filmati* [of the historical physics cabinet], <http://www.museovirtualesarpi.it/progetto.html>. Paolo’s last video was made in the summer of 2021 and concerned experiments that Johann Wilhelm Ritter undertook on his own body with a Voltaic pile. The video was requested by the Deutsches Romantik-Museum in Frankfurt for its permanent exhibition. It is not currently available on the Internet.

Fondazione Scienza e Tecnica until January 2020 when the fruitful collaboration was brutally terminated against Paolo's wishes.

These were not exclusive collaborations, however. By paraphrasing the protagonist's aria in Mozart's *Nozze di Figaro*, Paolo was the 'farfallone amoroso' flying from flower to flower, or, to be more exact, from instrument to instrument and from collection to collection: from the Museo Nazionale della Scienza e della Tecnica "Leonardo da Vinci" in Milan, Italy, to the Collection of Historical Scientific Instruments of Harvard University in Cambridge, Massachusetts, USA; from the Fraunhofer refractor at the Tartu (Dorpat) Observatory, Estonia, to the Ramsden Circle, Pistor & Martins meridian circle, and Merz equatorial of the Palermo Observatory, Italy – all of which Paolo methodically and lovingly restored.⁶ His last endeavour (with Marco Beretta) was the study, restoration, and cataloguing of the chemical instruments of Antoine-Laurent de Lavoisier, preserved for the most part at the Musée des Arts et Métiers, Paris.⁷

For his exceptional merits, Paolo held leadership positions in key learned societies and associations. Here are three examples: from 2003 to 2013 he served as the president of the Scientific Instrument Commission of the International Union of History and Philosophy of Science and Technology (IUHPST); from 2009 to 2013, he was first vice-president of the IUHPST Division of History of Science and Technology; and from 2005 until his death, he was the president of the Scientific Instrument Society. These were not simply ceremonial positions. Sara Schechner got a front row seat of the knowledge, diplomacy, and commitment required when she served as secretary of the Scientific Instrument Commission at the time of Paolo's presidency. As president, Paolo worked closely with local organizers in planning annual meetings in Dresden, Beijing, Krakow, Cambridge (USA), Lisbon, Budapest, Florence, Kassel, Rio de Janeiro, and Manchester that enabled participants to have access to hidden collections and go on remarkable excursions to historic sites of special interest. He wrote many letters on behalf of the SIC to ministers of culture, observatory directors, and university rectors urging the preservation of significant historical instruments and collections at risk in Paris, Stockholm, Lisbon, New Haven, Oxford, Leiden, Rome, and Marseille. Notable achievements of the SIC under Paolo's leadership were the creation of a SIC logo; the launch of *Scientific Instruments and Collections*, the commission's book series published by Brill with Giorgio Strano as editor-in-chief; and the establishment of a democratic procedure for the election of future commission officers.

Paolo's scholarship and curatorial work also earned him many prestigious awards during his career. He was appointed to the Sarton Chair of History of Science at Ghent University for the academic year 2000-2001. In 2002, he received the Paul Bunge Prize from the Hans R. Jenemann-Stiftung managed by the Ge-

⁶ BRENNI, 2012; CHINNICI, FODERÀ SERIO, BRENNI, 2001; BRENNI, CHINNICI, FODERÀ SERIO, 2001.

⁷ BERETTA, BRENNI, 2022.

sellschaft Deutscher Chemiker (German Chemical Society) and Deutsche Bunsen-Gesellschaft für physikalische Chemie (German Bunsen Society for Physical Chemistry). The Bunge Prize is regarded worldwide as the most important honour in the history of scientific instruments. The Scientific Instrument Society Medal (2005) was awarded to Paolo at the time of his Gerard Turner Memorial Lecture, "Artist and Engineer: The Saga of 19th Century French Precision Industry."⁸ Paolo also received the Marc-Auguste Pictet Medal (2012) from the Société de Physique et d'Histoire Naturelle (Society for Physics and Natural History) of Geneva. This award is given to an experienced scholar whose work in the history of science is authoritative; the theme in 2012 was the history of earth sciences.

Besides his volcanic scholarly career,⁹ Paolo was also able to cultivate other interests and hobbies. He was a talented draftsman of industrial landscapes, an avid collector of uranium glass artefacts (all of us can remember him inspecting antiques shops looking for historic scientific instruments, but also for such radioactive items) and, in his last years, a player piano addict who every morning fed his instrument (the only apparatus he did not restore himself) one of the 200 or so music rolls from his collection. Paolo was also a charming host treating house guests to good food, fine conversation, hearty laughs, and entertainment with dramatic flair. On one visit to his home in Mendrisio, one of us recalls that Paolo demonstrated the large Tesla coil in his dining room for her and her young daughters. When he grabbed a sword off the wall and drew an enormous lightning bolt from the coil, the girls' eyes nearly popped out of their heads!

Whenever one met Paolo for the first time, one got the remarkable feeling that one already had known him for a long time. We travelled the world with him from one Scientific Instrument Symposium to the next and became very dear friends. He could be counted upon to identify any mystery object, to crack witty jokes, and embrace us with a warm smile. That smile and the generous intellect from which it stemmed were incandescent. His unexpected death is a great loss to the community.

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⁹ A list of Paolo Brenni's publications compiled by Alessandra Lenzi of the Museo Galileo can be found in BERETTA, 2022.

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