

# Why SCIENCE

A NEW PARTNERSHIP BETWEEN CALTECH AND

# HISTORY

THE HUNTINGTON AIMS TO GIVE THE HISTORY

# Matters

OF SCIENCE AND TECHNOLOGY A TIMELY BOOST

by JUDY HILL

Across the nation, university history departments have been shrinking in recent years amid a more general conversation regarding the value of the humanities. Within that broader landscape, programs in more specific subject areas, like the history of science and technology, are particularly in jeopardy. And that, say historians from Caltech and The Huntington Library, Art Museum, and Botanical Gardens, makes their recent launch of a new joint research institute both a timely and critical endeavor.

## “IRRELEVANCE EQUALS OBSOLESCENCE”

This latest endeavor builds on a commitment both institutions have made regarding the importance of history and, in particular, the light it can shed on both the past and future of science and technology.

“If you don’t know where you’ve been, you don’t know where you are and you don’t know where you’re going,” says Jed Buchwald, Caltech’s Doris and Henry Dreyfuss Professor of History and director of the newly formed Research Institute for the History of Science and Technology (RIHST). “And history as a discipline is much older than science as a discipline. Until about the middle of the 18th century, it was actually considered to be the central discipline.”

The decline of investment in the study of history on American campuses is a deeply unsettling trend, says Dan Lewis, associate director of RIHST and Dibner Senior Curator of the History of Science and Technology at The Huntington. “We’re very presentist, and so we don’t understand how to look carefully at history and extract its lessons. As soon as you think something isn’t relevant, it’s doomed, whether it’s archeology or paleontology or religious studies, because irrelevance equals obsolescence.”

As a premier institution in science and technology, “we have to be able to communicate to our students where we come from,” adds Jean-Laurent Rosenthal, Caltech’s Rea A. and Lela G. Axline Professor of Business Economics and the Ronald and Maxine Linde Leadership Chair of the Division of the Humanities and Social Sciences. “If our students are going to spend 40 or 50 years in a discipline like biology, for example, they have to understand that there’s a history to biology and that it matters. Thinking about change over time within academic disciplines, especially in the subject areas we’re in, is pretty important for us.”

## SCIENCE HISTORY AT CALTECH

The history of science as an academic discipline became a part of Caltech’s humanities programming in the mid-1960s with the appointment of Dan Kevles, J. O. and Juliette Koepfli Professor of the Humanities, Emeritus. Kevles is a broad-based historian of science known for his books on American physics and eugenics, and for his scholarship on science and technology in modern societies. Kevles, in turn, encouraged the hiring of Diana Kormos-Buchwald, now editor of Caltech’s Einstein Papers Project and Robert M. Abbey Professor of History, who came to the Institute in 1989 as a historian of chemistry.

That effort was strengthened in 2001 with the arrival of Jed Buchwald, a historian of physics and the philosophy of physical sciences; Mordecai Feingold, now the Van Nuys Page Professor of History (who studies the rise of science from the Renaissance to the 18th century); and, in 2010, Nicolás Wey-Gómez, who focuses on the role of science and technology in exploration.

With Caltech’s influence on the discipline established, the Institute was able to capitalize on the opportunities that its proximity to and long history of collaboration with The Huntington provides. That partnership has led to the creation of the new research institute, which a gift from Stephen E. Rogers will fund for its first three years of operations. Rogers himself epitomizes that collaborative spirit: he is

both a member of The Huntington’s board of overseers and president of the Caltech Associates.

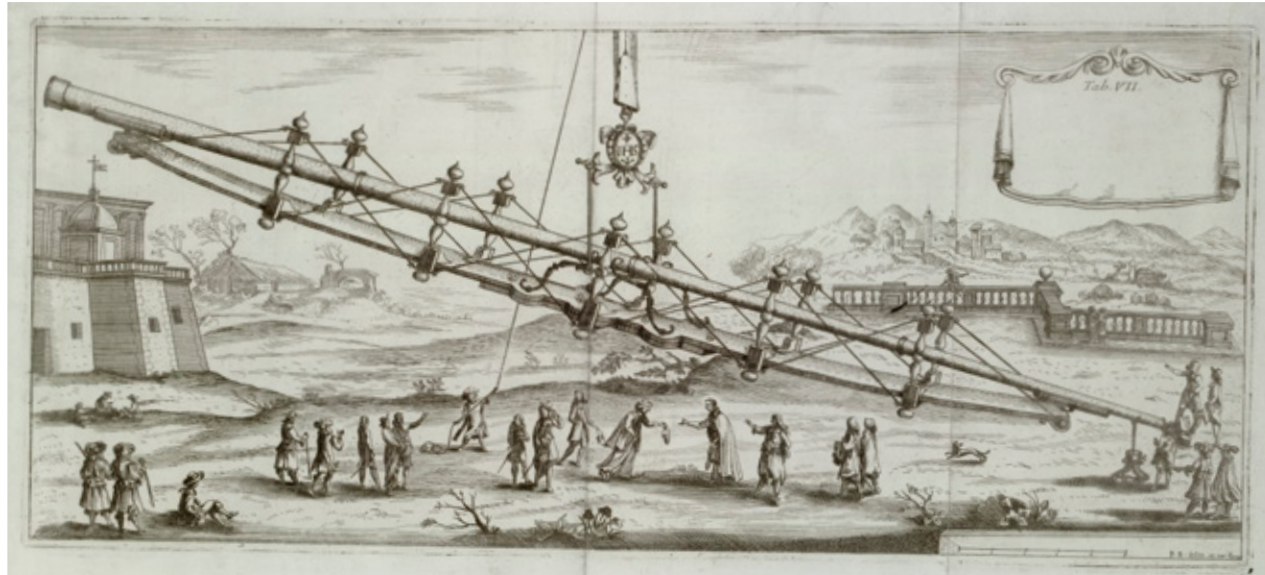
Steve Hindle, director of research at The Huntington, notes that Caltech’s expertise combined with the strength of The Huntington’s collection “should make it possible for this collaboration to raise the Caltech-Huntington nexus to the status of the Max Planck Institute in Berlin as a center for the history of science and technology.”

Specifically, the new institute will get its start by creating an opportunity each fall over the next three years for a different senior scholar to spend time conducting research in The Huntington’s extensive library collections and at the Caltech Archives. The inaugural scholar is Erik Conway, historian at JPL, which Caltech manages for NASA; Conway will be examining the history of electrical technology.



Left (book): *Etudes Sur Le Vin* (with notes on the page facing the title page by the author, Louis Pasteur). Above: Finch from Charles Darwin’s *Zoology of the HMS Beagle*, 1839–43, The Huntington Library, Art Museum, and Botanical Gardens.





In addition, and in keeping with RIHST's vision, Caltech plans to hire a professor of the history of technology. "It's equally important as having faculty in the history of science," says Rosenthal, "because many of the things that we're most proud of, such as our telescopes and LIGO [the Laser Interferometer Gravitational-wave Observatory], are engineering feats that involve technology, building things that nobody could build before."

### CRITICAL MASS

Complementing Caltech's academic strength in the field is The Huntington's extraordinarily rich history-of-science collection, with holdings ranging from a 13th-century Ptolemy manuscript to modern civil engineering reports.

"If you count the Library of Congress and the Linda Hall Library in Kansas City, The Huntington is one of the three major locations of science and technology materials in North America," says Buchwald. And he speaks from experience. During his tenure at MIT during the 1990s, Buchwald directed the Dibner Institute for the History of Science and Technology, a research institute that included the 47,000-volume Burndy Library of scientific and technological history materials, plus hundreds of archival objects. When the Dibner family began looking for a new location for the library in 2004, The Huntington threw its hat into the ring and was selected to be its new home. Serendipitously, notes Dan Lewis, The Huntington had recently finished building the Munger Research Center, a 90,000-square-foot building with 30,000 square feet of collection space. "We were a year into our occupancy of the building," he says, "when this came onto our radar."

"That was our single biggest acquisition of any kind since Henry Huntington's time," Lewis says of the Burndy Library. There were 20,000 reference works, 67,000 books total, and about 2,000 linear feet of manuscript material.

Spanning the 13th century through the middle of the 20th, the Burndy holdings include the largest collection of Isaac Newton materials outside England, hundreds of early works on physics and mathematics, an extensive assemblage relating to bridge and water engineering, materials on color theory and practice, a substantial aeronautics section, and some of the rarest books about Western science published in Japan. The library also includes such archival oddities as a set of glass lantern slides showing the construction of the Panama Canal and 400 lightbulbs from the 1890s to the 1960s.

The Burndy isn't The Huntington's only science-and-technology offering, though. The library also boasts the world's third largest Charles Darwin collection; the Mount Wilson Observatory Collection, with more than thousand books on the history of astronomy and physics; the Los Angeles County Medical Association Collection; one of the largest depositories of materials related to mining and exploratory geology in the U.S.; and the largest collection of history-of-chemistry books west of Wisconsin.

RIHST scholars will also benefit from access to materials in the Caltech Archives, at JPL, and more broadly in Southern California.

### RESEARCH READY

The authentic experience of engaging with unique material texts is critically important, agrees research director Hindle. "Yes, it's helpful to scholars in Kenilworth or Canberra or Krakow to be able to sit remotely and access

Above: A long focal-length telescope from Francesco Bianchini's *Hesperii et Phosphori Nova Phaenomena*, 1728. Right: A page from Abraham Werner's *Nomenclature of Colours*, 1821, The Huntington Library, Art Museum, and Botanical Gardens.

material from a distance. However, the real value added in coming into an environment like The Huntington is that you don't just engage with the collections, you engage with the scholarly community that orbits around the collection. Those conversations are often serendipitous and unpredictable, and they can be generative of unique ideas in ways that are far less easy to replicate online."

To that end, the new Caltech-Huntington program will annually convene groups of scholars for two weeks to work together in a residential institute and will also invite short-term visiting scholars, a junior scholar appointed for a two-year term at Caltech, and two short-term research fellows at The Huntington.

"There still is nothing like working directly with the materials," Buchwald says. "And working in a place like The Huntington, which has groups of scholars coming in and working together, is in itself synergistic. If you put that together with our expertise here at Caltech, then you have the possibility of some first-rate research."

RED .					
N <sup>o</sup>	Names .	Colours .	ANIMAL .	VEGETABLE .	MINERAL .
91	Garnise Red .	[Red swatch]		Raspberry. Cocks Comb. Carnation Pink .	Oriental Ruby .
92	Lake Red .	[Red swatch]		Red Tulip. Rose officinalis .	Spinel .
93	Crimson Red .	[Red swatch]			Precious Garnet .
94	Purple Red .	[Red swatch]	Outside of Quills of Tern .	Dark Crimson officinal Garden Rose .	Precious Garnet .
95	Cochineal Red .	[Red swatch]		Under Disk of decayed Leaves of None-so-pretty .	Dark Cinnabar
96	Vinous Blood Red .	[Red swatch]	Vinous Blood .	Mask Flower, or dark Purple Scabious .	Pyrope .
97	Brownish Purple Red .	[Red swatch]		Flower of deadly Nightshade .	Red Antimony ore .
98	Chocolate Red .	[Red swatch]	Breast of Bird of Paradise .	Brown Disk of common Marigold .	
99	Brownish Red .	[Red swatch]	Mark on Throat of Red throated Diver .		Iron Flint .

A different theme will be explored each year, with the history of electrical technology in the spotlight this year, the history of environmental sciences slated for next year, and early modern science scheduled for the program's third year.

As JPL's Conway notes, "The Huntington's collections are vital to understanding the technological development of the western United States. Electricity and the organizations producing and distributing it were essential infrastructure, and The Huntington's collections help document their role in developing California."

Beyond reading texts for content, Hindle says, researchers also need to imagine how those texts were used by scholars. "It is fascinating to me that we can identify Isaac Newton's own copies of 17th-century books because we know the way in which he dog-eared the pages. Only by looking at the material objects would you be able to get that sense."

Since the history of science and technology is a relatively small field, with scholars dispersed in small centers or departments across the broad higher-education landscape, creating an environment where they can feel like they are part of a broader conversation is important, says Rosenthal. "In most universities you're going to have maybe three or four people doing history of science. We're creating a real intellectual forum and a network of resources that begins with Caltech and The Huntington and extends out from that."

### REVIVING THE DIALOGUE

As Rosenthal sees it, Caltech and The Huntington are uniquely well positioned to advance the history of science and technology as a discipline. "We already have the historical sense of how Caltech and The Huntington came to be, how they both have matured into outstanding institutions. Now, with RIHST and the collections at The Huntington and Caltech Archives, our faculty and visiting scholars will have unparalleled opportunities to advance their own research while also furthering the conversation on why the study of history remains relevant." Rosenthal continues, "We hope these efforts will provide renewed momentum to the study of the history of science and technology, a critical field for understanding the advent of modern societies."

This kind of partnership, between an independent research library and a research institute, does not happen very often, notes Hindle. "I think we are offering a model of how two very different institutions might actually be brought into a common vision."

### GOOD NEIGHBORS

Caltech and The Huntington, whose campuses are less than a mile apart, have had a close relationship since Caltech's George Ellery Hale encouraged railroad magnate Henry E. Huntington to transform Huntington's library, art, and botanical collections into a research center a century ago.

Read more about collaborations between Caltech and The Huntington at [magazine.caltech.edu/post/huntington-collaboration](http://magazine.caltech.edu/post/huntington-collaboration)

