NATIONAL ENDOWMENT FOR THE
Humanities

OFFICE OF **CHALLENGE GRANTS**

Narrative Section of a Successful Application

The attached document contains the grant narrative and selected portions of a previously funded grant application. It is not intended to serve as a model, but to give you a sense of how a successful application may be crafted. Every successful application is different, and each applicant is urged to prepare a proposal that reflects its unique project and aspirations. Prospective applicants should consult the Challenge Grants application guidelines at http://www.neh.gov/grants/challenge/challenge-grants for instructions. Applicants are also strongly encouraged to consult with the NEH Office of Challenge Grants staff well before a grant deadline.

Note: The attachment only contains the grant narrative and selected portions, not the entire funded application. In addition, certain portions may have been redacted to protect the privacy interests of an individual and/or to protect confidential commercial and financial information and/or to protect copyrighted materials.

Project Title:	*Endowed Fellowship Program in History of Science, Medicine and Technology*
Institution:	Philadelphia Area Center for History of Science, Philadelphia, PA
Project Directors:	Dr. Babak Ashrafi
Grant Program:	Challenge Grants

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Abstract

The Philadelphia Area Center for History of Science is a consortium of twelve cultural and educational institutions using their exceptional resources to promote academic and public understanding of the history of science, technology and medicine. The Center started in 2007 as a project of the American Philosophical Society and became an independent 501(c)(3) in 2008. The consortium has pursued an ambitious strategic plan to build an institution that would rank as a top international center for history of science alongside the Max Planck Institute for the History of Science in Berlin and the Department of History and Philosophy of Science at Cambridge University.

The Center requests an NEH Challenge Grant of $500,000 to establish an endowment for its fellowship programs. This endowment will support research, dissertation writing and postdoctoral fellowships in the history of science, technology and medicine. A Challenge Grant will enable the Center to provide a secure funding base for the fellowships rather than relying on short-term gifts and grants as it does now. Additionally, it will provide a strong foundation as the Center expands its consortium in the next several years by adding new member institutions from across the country.

The Center's current consortium partners include some of the oldest and most distinguished scientific institutions in the New World, as well as four of the world's leading departments of the history of science: the Department of the History and Sociology of Science at the University of Pennsylvania; the Program in the History of Science in the Department of History at Princeton University; the Institute for the History of Medicine as well as the Department of the History of Science and Technology at Johns Hopkins University. The scope of our members' collections, taken together, comprise an exceptional, perhaps unique, resource for studying the history of science, technology and medicine.

The Center works with its partners to: facilitate research by scholars from across the country in the consortium's collections; share the results of historical research with broad audiences inside and outside academia; and provide a rich set of online resources for research and learning. Our discipline is relatively new in the humanities; one which draws on the tools of anthropology, sociology and philosophy as well as intellectual, social and cultural history to provide a much needed humanistic perspective on science.

Over the last five years of operation, the Center has raised $1.7M. Sources of support have included the National Science Foundation, the Wyncote Foundation, Merck & Co., Inc, the Alfred P. Sloan Foundation, the Gladys Krieble Delmas Foundation, the Richard P. Lounsbury Foundation and several individual benefactors. We have developed strong relationships with several of our donors. The Wyncote Foundation, having provided operating support over the last three years, has indicated that they are willing to consider endowment support. Another donor, who is an avid supporter of the history of science and who understands the Center's potential for future growth, has indicated that if the Center is awarded an NEH Challenge Grant, then he is willing to consider a significant contribution over the next four years that will help the Center in its goal to raise 1.5M.

Challenge Grant Budget

Total NEH funds requested:		$500,000
Year 1:	$ 50,000	
Year 2:	$175,000	
Year 3:	$225,000	
Year 4:	$ 50,000	
Total Nonfederal contributions		$1,500,000

Planned Expenditures:

Endowed	
Principal	$2,000,000
Rate of return to be expended	5%
Projected annual expendable income	$100,000
Use of Endowment Income	
Post Doctoral Fellowship (1 Fellow)	$45,000
Dissertation Writing Fellowships (2 fellows @ $23,000 each)	$46,000
Research Fellowships (3 to 5 fellows, average grant range of $1,500 to $2,500)	$ 9,000

Institutional Fact Summary

History: Founded in 2007 as a project of the American Philosophical Society and became an independent nonprofit entity in 2008. The Center is a regional consortium of cultural and educational nonprofits with extensive archival resources in the history of science, technology and medicine and is now starting to expand beyond the Philadelphia area to become a national center.

Mission: Consortium's mission is promoting academic and public understanding of the history of science, technology and medicine. The Center works with its consortium partners to facilitate research in members' collections, to foster a vibrant academic community, to share the results of historical research with broad audiences inside and outside academia, and to provide a rich set of online resources for research and learning.

Governance and Administration: The Center is governed by a Board of Directors comprising distinguished leaders from the area's educational, research, cultural and business institutions. These Directors lead a set of committees whose members include colleagues who are not Directors: Audit and Finance, Development, Nominations and Governance, Membership, Programs, and Libraries & Archives. The Board meets semi-annually; the Executive Committee quarterly; and the other committees as needed. An External Advisory Board was created in April 2010 to provide independent review on the quality of the programs and initiatives of the Center. The executive director has been in place since 2007. Supporting positions include Program Coordinator and Director of Development and Communication.

Physical Facilities: The Center is housed within the American Philosophical Society which is a consortium member. The Center has an office suite composed of director's office, offices for staff and fellows as well as a conference room. Other consortium members also provide additional meeting space within their own facilities as needed for colloquia, symposium and public events.

Humanities Staff: Staff consists of one full time historian, three resident historian fellows, two administrative staff. Scores of collaborators throughout consortium institutions including humanities academics, librarians, archivists and curators.

Humanities Collections: The Center utilizes the history of science, medicine and technology collections of its consortium members. See Appendix, Highlights of the Consortium Collections.

Humanities Fellowships: In the last two years, have awarded 4 nine-month dissertation writing fellowships, 1 post-doctoral fellowship and 21 research fellowships. Since 2007, have awarded a total of 71 fellowships, 100% of which are in the humanities. In the first five years, several fellows have moved on to positions at such institutions as Harvard, Yale and the University of Cambridge. Shortly after selection, our first postdoctoral fellow was awarded the Nathan Reingold Prize for best graduate student essay by the History of Science Society.

Online Resources:

- Innovative online cross-institutional search of the 1.4 million rare books and manuscript catalogs of member institutions – with more than 82,000 queries answered in 2011-2012.
- Comprehensive regional calendar of history of science events, including more than 200 events annually.
- Descriptions and news of member institutions collections and archives.

Events: including lectures, conferences, film screenings and performances for academic and public audiences; ranging in attendance from twelve (working groups) to more than 300 (joint meeting of US, UK and Canada professional societies).

The Philadelphia Area Center for the History of Science requests a Challenge Grant of $500,000 from the National Endowment for the Humanities to be matched by $1,500,000 in additional funds to establish an endowment for its research, dissertation writing and postdoctoral fellowship programs.

The Philadelphia Area Center for History of Science is a consortium of twelve cultural and educational institutions using their exceptional archival resources to promote academic and public understanding of the history of science, technology and medicine (hereafter "science" for brevity). The Center started in 2007 as a project of the American Philosophical Society and became an independent 501(c)(3) in 2008. The consortium has pursued an ambitious plan to establish in Philadelphia, the birthplace of American science, an institution that will rank as a top international center for the study of the history of science alongside the Max Planck Institute for the History of Science in Berlin and the Department of the History and Philosophy of Science at Cambridge University.

The Center's consortium partners have been collecting historical archives since the 18th century. When taken together, these collections are an invaluable resource for scholarship in the history of science. Additionally, all of the member institutions produce programs that promote understanding of the history of science among both academics and public audiences. This regional concentration of institutions promoting the history of science inspired the creation of the Center and its consortium. Consortium members collaborate through the Center to accomplish several shared goals more effectively than they could individually. These goals include: providing fellowships to advance scholarship and increase research in members' collections; fostering a vibrant academic community with programs bringing together scholars from area institutions as well as visitors and guests; and producing public events and online resources to promote greater awareness of the history of science and its relevance to

contemporary issues. Heartened by the success of the regional consortium in elevating and informing public discussion of history of science, and with the strong encouragement of the academic community, the Center is planning to expand in the next several years to a national consortium for promoting academic and public understanding of the history of science.

Significance of Activities, Program and Holdings

Changes in science, technology and medicine have been widely acknowledged as powerful influences on our lives since at least the late nineteenth century. The history of science is a relatively new discipline in the humanities, having developed through the twentieth century into an examination of scientific change from a broad perspective including social, cultural, institutional, political and economic contexts, among others. This field provides a much needed humanistic perspective on science, drawing on the tools of anthropology, sociology and philosophy as well as intellectual, social and cultural history to provide fuller insights into how we have investigated, conceived and manipulated the natural world around us, into how changing social and cultural structures have affected scientific knowledge and practice — and how changes in science have, in turn, affected larger social and cultural structures.

In a seminal lecture at Harvard University in 1935, George Sarton, sometimes regarded as the "father" of the history of science in America, launched the "seminary on the history of science" by commenting on the dearth of adequate historical analysis related to scientific pursuits and developments. Sarton challenged a generation of scholars to create a new discipline by developing a body of literature that would include peer-reviewed journals and seminal monographs, establishing scholarly curricula at the graduate level, and developing innovative interpretive approaches. According to the American Historical Association, there are now approximately 50 institutions in the United States offering the Ph.D. in these fields, and there are a number of well-regarded, peer-reviewed journals, including *Isis*,

Osiris, the *Bulletin of the History of Medicine* and *Technology and Culture*. The history of science is a growing field alongside much longer-established humanities disciplines. It is an interdisciplinary field that has grown in breadth and depth of analysis, participating in the social and cultural turns of the broader humanities disciplines in recent decades.

Basing a Consortium in Philadelphia

The distinguished historian Gary Nash refers to the origins of natural philosophy in America as the "Philadelphia Enlightenment" of the 18th century, as personified by Benjamin Franklin's commitment to the acquisition of knowledge for bettering humankind. The founding fathers of the nation were famously invested in science and technology, much of it pursued and published in Philadelphia. Edgar P. Richardson refers to Philadelphia in the period that followed (1800-1820) as the "Athens of America". Philadelphia, the home of Benjamin Rush, became the most important medical city in the colonies and remained so through the 19th century. Benjamin Franklin published in Philadelphia the first medical monograph in North America: Thomas Cadwalader's *Essay on the West India Dry-Gripes* in 1745. John Redman Coxe founded the Chemical Society of Philadelphia in 1792 and later pioneered smallpox vaccination. American surgery emerged here first, inaugurated in the early 19th century by Philip Syng Physick, and S. Weir Mitchell founded neurology as a separate specialty in America, publishing *Injuries of Nerves and their Consequences* in 1872. In 1855, William Wagner established the Wagner Free Institute to educate the common man in the mysteries of the natural world.

During the 19th century, Philadelphia was called "the workshop of the world", beginning with Oliver Evans' foundries and machine shops and continuing with those of the Sellers and Excoll families. Philadelphia was the national center of steam engine and locomotive innovation, producing both North America's first steam boat in 1787 and first steam powered land vehicle in 1805. The Franklin Institute, founded in 1824, was one of the first, and for many decades the most important, national center for

technical research and education. In the second half of the century, Philadelphia and its environs, with such companies as DuPont and Sun Oil Company, became the center of the nation's developing chemical industries (pharmaceuticals, paints and dyes, petroleum refining), all of them firmly grounded in the science of chemistry and the institutions (such as the University of Pennsylvania and the Philadelphia College of Pharmacy) that were training chemists and chemical engineers.

Though Philadelphia in the 20th century was no longer the solitary center of scientific and technical research in America, it has continued to be a dynamic and vital locus for basic and applied research. The Wistar Institute, the nation's first independent medical research facility, was founded in Philadelphia in 1892, while the Bartol Research Foundation, established by a bequest in 1918, funded the seminal cosmic ray research of W.F.G. Swann. In 1903, the Phipps Institute was endowed by the steel magnate for whom it is named and produced pioneering work in epidemiology and microbiology. During World War II, Philadelphia was the developmental site for ENIAC, the world's first programmable electronic computer, and the U.S. Navy constructed one of the first atomic piles at the Philadelphia Navy Yard. At Fox Chase Cancer Center, Baruch S. Blumberg discovered the hepatitis B virus and developed the vaccine against it, for which work he won the Nobel Prize for Medicine in 1976. DuPont's first general scientific laboratory was established in 1903 near Wilmington, Delaware; in 1933, Bell Labs was the first to transmit stereo sound in a message from Philadelphia to Washington, DC. Although science and engineering splintered into separate disciplines as the nation grew, the tale of the growth of American science and technology is inextricably entwined with Philadelphia scientists and engineers and the places in which they worked. Even today, Philadelphia ranks as one of the top life science clusters in the nation, with an eclectic mix of university research, world-renowned teaching hospitals, technology spinoff companies, and other start-ups that will provide research materials for future historians of science.

Given the central place of Philadelphia in the history of science, medicine and technology, it is no surprise that there is also a wealth of resources for scholarship in the field. The Center's consortium partners include some of the oldest and most distinguished scholarly institutions in the New World as well as four of the world's leading departments in history of science: the Department of History and Sociology of Science at the University of Pennsylvania; the Program in the History of Science at Princeton University; and both the Institute for the History of Medicine and the Department of History of Science and Technology at Johns Hopkins University. Our current twelve-member consortium have been collecting archives in science, technology and medicine for over three hundred years and they continue to do so, collecting primary documents and specimens, interpreting science through exhibitions and outreach programs to a variety of constituencies, and offering formal university instruction in the history of science through our university partners. The scope of these collections now spans the entire world and stretches back to the 13th century. (See attached Highlights of Consortium Collections, p. 45)

The Center's Fellowship Program

Since 2007, the Center's fellowship program has provided each year ten to fourteen research fellowships (one to two months) as well as two dissertation writing fellowships (nine months) to humanities scholars who will benefit from using the consortium collections. This year we have added a two-year postdoctoral fellowship. The Center's applicant pool has grown in size and strength every year, numbering 55 this year including applications from a broad range of institutions including Harvard, Yale, Princeton, MIT, UC Berkeley and UT Austin. The Center provides fellows with office space with telephone and Internet and facilitates access to area libraries and archive. Fellows at the Center are part of a vibrant community including faculty, students and other fellows from area institutions participating in many public and scholarly events as well as informal reading and writing groups held at the Center

and throughout the region. Dissertation fellows have spoken at local conferences and in colloquium series and have also given guest lectures in classes at area universities. The Center's current postdoc is in residence for two years working on a book-length project. She will have ample opportunity to become familiar with area institutions and their collections and she will help orient shorter term fellows to the community.

We advertise fellowships through several mailing lists and websites such as the History of Science Society (HSS), Society for the History of Technology (SHOT) and the American Association for the History of Medicine (AAHM) that are standard sources for such information in the profession, as well as H-Net. In addition, the Center sends letters to about 50 graduate departments that regularly give degrees in history of science, technology or medicine. In the last three years alone, applications have significantly increased, from 30 applicants in 2010 to the current 55 applicants for the upcoming 2013-2014 academic year. Applicants report that familiarity of the consortium fellowship program is spreading quickly by word of mouth in the academic community.

Scholars submit applications online, through an in-house application and review system developed by the Center in 2008 which allows our reviewers to access the files remotely. The system has been very helpful in efficiently ensuring the smooth review and processing of applications. It is now used by several of the consortium members, including the Chemical Heritage Foundation and the Hagley Museum and Library for their own in-house fellowships. In addition it was recently utilized by the History of Science Society for the joint meeting with the UK and Canadian professional societies, held in Philadelphia in July 2012.

Center fellowship applications are rigorously reviewed by two different kinds of readers. “Internal readers”, who comprise librarians and archivists from the Center's twelve consortium partners, evaluate all research proposals for appropriateness to the area collections. They may find that a project is

not appropriate for consortium collections or they may suggest additional collections in the consortium that are relevant to a project. About a dozen "external readers" are drawn from a pool of approximately 50 noted scholars from the US and Europe. These external reviewers evaluate project proposals for their potential scholarly contribution. (See attached list of Reviewers of Applications in Past Years, p. 47.) This review process has resulted in the selection of outstanding dissertation fellows from across the United States. In the first five years of the fellowship program, several have moved on to positions at such institutions as Harvard, Yale and the University of Cambridge. Shortly after being selected, our first postdoctoral fellow was awarded the Nathan Reingold Prize for best graduate student essay by the History of Science Society.

Since 2007, 54 outstanding graduate students from across the country have traveled to the Center from a wide range of academic departments including History, History of Art, English, Education, American Studies, Science and Technology Studies, and History and Philosophy of Science. Reflecting the interdisciplinary nature of the field, they have produced intellectual, social, cultural and institutional histories on subjects such as healing authority and gender relations in early America, the global drug trade in the 17th century, early 20th century American medical diplomacy to China, environmental catastrophes and American childhood in the 1970s, natural science and biblical scholarship in Renaissance Italy, the ethics of weapons research in 20th century America, and 19th century American frontier art and cartography. (See attached lists of current, past, and incoming fellows and their topics for further illustration of the broad range of research supported by the Center; pages 48,50, and 54 respectively.)

For example, in an investigation of how Italian medical doctors studied the Bible during the late Renaissance, one young scholar's work reveals that there was an underlying change in the attitudes of doctors towards classical scientific texts that was also reflected in biblical scholarship of the day.

Medical doctors upheld the relevance and utility of classical texts in their understanding of the natural world, arguing that the texts be judged according to different criteria than a strictly classicist perspective and debating proper translation to reveal medical knowledge. This perspective encouraged naturalists of the day to plumb Pliny's and Dioscordides' compendia for information germane to the natural world of the ancient Near East. Similarly, Renaissance physicians pioneered a new critical study of the Bible that placed Holy Scripture alongside pagan texts of classical antiquity as documents that would illuminate the study of the natural world. The Bolognese naturalist, Ulisse Anldrovandi, for example, treated the Bible as a historical source as opposed to a sacred one, in contrast to the theologians of the day who were much more conservative in their approach to biblical studies. Several consortium members provided sources for this research including a collection of encomia medicinae, or praises of the medical profession in early modern Europe, at the College of Physicians and early modern polyglot Bibles at the University of Pennsylvania.

Another fellow's research examined the 19th-century interest in perfection, focusing on works that betray a desire to stop time and to pause the cycle of growth, decay, and rebirth at a ‘perfect moment’, such as Titian Peale’s butterfly illustrations and specimen boxes, M. J. Heade’s hummingbird projects, the Blaschka Glass Flowers at Harvard, and photographs and life casts of bodybuilder Eugen Sandow. These works pursued notions of perfectibility and engaged wide-ranging contemporary discourses—including evolution, theology and spirituality, neurasthenia, bodily decline and eugenics in a culture increasingly aware of temporality by the introduction of standardized time, train schedules, alarm clocks and the demands of factory schedules. These works stopped time at a moment of perfection and provide insight into 19th century fears and hopes about change, decay and progress. Consortium collections contributing to this research include the specimen boxes of Titian Ramsay Peale and related documents at the Academy of Natural Sciences as well as the extensive collection of Peale illustrations

and manuscripts at the American Philosophical Society, the Historical Society of Pennsylvania and the Library Company of Philadelphia.

The Center's Executive Director administers the fellowship programs with three levels of evaluation and oversight. A Committee on Libraries and Archives meets twice a year to evaluate the program to make adjustments to it. Committee members are drawn from member institutions where fellows conduct research. An Advisory Board reviews all of the Center's activities annually and reports to the Center's Executive Committee. The Executive Director reports on the Center's activities to the Board of Directors.

Establishing a National Center

The consortium currently comprises twelve Philadelphia-area institutions, involved with every aspect of the history of science, technology and medicine and utilizing the collective strength of their collections to promote scholarship. The Center serves as a collaborative structure that efficiently and effectively promotes scholarship in the history of science. The Center coordinates staff and other resources from the member institutions to accomplish three goals. We award fellowships and provide financial and logistical support for visiting scholars. We plan seminars, conferences and other academic and public events. We promote use of members' collections using innovative online access tools including the cross-institutional catalog search described below. A particular strength of the Center is that it supports and encourages research across multiple collections and fosters a collegial and stimulating environment for resident and visiting scholars.

The consortium plans to extend its membership beyond the Philadelphia area over the next few years. In order to transform the regional consortium into a national one, we will:

1) modify administration of the fellowship program to support research in the collections of member

institutions that are not necessarily near Philadelphia;

2) share academic and public events with member institutions through online streaming technologies; expand our online resources to incorporate materials from additional member institutions.

The Center's Board has developed a detailed strategic plan, to be approved in June 2013, to accomplish these goals.

The Center is governed by a Board of Directors comprising distinguished leaders from the area's educational, research, cultural and business institutions. These Directors lead a set of committees whose members include colleagues who are not Directors: Audit and Finance, Development, Nominations and Governance, Membership, Programs, and Libraries & Archives. An External Advisory Board was created in April 2010 to provide independent review on the quality of the programs and initiatives of the Center. This group is composed of nine individuals who are luminaries in the field of history of science, among them Loren Graham, Professor Emeritus of History of Science at both Harvard University and Massachusetts Institute of Technology, and Lynn Nyhart, Professor of History of Science at the University of Wisconsin Madison and currently President of the History of Science Society. (See attached Advisory Board List for complete listing, p.56.) We are extremely heartened by the comments received from members of the External Advisory Board that recognize and validate what the Center has tried to accomplish in its first five years:

> *This Center, in my opinion, is currently the most vigorous focus for the history of science in the United States. We are fortunate in having many excellent university programs across the country in history of science but most of them understandably concentrate on their own institutions. The Philadelphia center is distinguished by its outreach, which now extends along the entire Eastern seaboard and may shortly become a truly national center. It has found a unique function as a coordinating leader and, if the Center can continue to gain financial support, its future is very bright indeed.*
> Loren Graham
> Professor of the History of Science, Emeritus
> Massachusetts Institute of Technology and Harvard University

> *In its short history, the Center has become far more than a clearing-house and coordinator of information about Philadelphia-area history of science: it is rapidly becoming an autonomous hub for the regional, and even national, scholarly community in history of science, medicine, and technology. Its combination of information-tracking, public and scholarly events, working groups, and fellowships offers other localities across the nation a model of how to unite diverse institutions and disciplinary communities into one larger intellectual community to advance the history of science.*
> Lynn K. Nyhart
> Professor of the History of Science
> University of Wisconsin-Madison
> President, History of Science Society

As the Center expands to a national platform, the Board of Directors as well as the committees which organize and oversee the Center's activities will be expanded to include additional member institutions which should facilitate the effective expansion of programs to those institutions.

Dissemination of Humanistic Knowledge

The Center's academic events program starts each year with an Introductory Symposium for many of the several dozen scholars who are awarded research fellowships by the Center and its consortium partners as well as other area graduate students and faculty who are new to the area or new to the field. Scholars introduce their work during this day-long event with plenty of opportunity for discussion.

Six working groups meet each month to discuss works-in-progress and published items of common interest. The working groups focus on: the history and philosophy of science; history and theory (that is, methods and philosophy of history); history of earth and environmental science; history of medicine and health; history of early science; and history of physical science. We plan to add working groups in the history of biology, technology and the human sciences in the next year. These groups attract scholars at all levels from area organizations, both inside and outside the consortium. Participants in the working groups, including the Center's fellows, share their works-in-progress and discuss recent

work and developments in the field. The working groups have become a second – and in some cases a first – intellectual home for area scholars who are sometimes the only ones at their institution working on history of science, technology or medicine. The consortium also supports several conferences each year, providing funding and logistical support.

The Center produces events for the public including lectures, panel discussions, film viewings and performances at venues throughout the Philadelphia area in concert with our consortium. These events have provided an opportunity for scholars to engage broad diverse audiences in discussion of humanistic perspectives on developments in science, technology and medicine, as in the Legacy of Galileo program held in conjunction with The Franklin Institute. This program, which had an attendance of over 300, brought together scholars and authors in the areas of science, religion and art to examine the always-present tension between belief in established knowledge and acceptance of novel scientific claims – a tension that was explored in the multiple contexts of religious beliefs, cultural practices, social structures, and institutional frameworks. In another event held during the 2012 elections, two scholars provided historical perspective on the role of science and scientists in national politics since World War II.

The website of the Center provides information about the collections of consortium partners and links to their library catalogs and other resources. Research fellows write reports featured on the website about their research and about their findings in the archives. The Center's website as a whole receives 200,000 pageviews a year from nearly 70,000 different visitors – in addition to those who follow the Center regularly via RSS, Facebook and Twitter.

Our online calendar of events—a comprehensive listing of regional happenings related to the history of science, technology and medicine—has been an important resource for both academics and the public. Our consortium members confirm that the calendar has boosted attendance at their own events.

We have also received emails of appreciation from area journalists, activity directors and local tour guides as to the value of a "one stop shop for all events relating to the history of science". We now regularly receive unsolicited requests to post events, as well as corrections and additions, not only within the consortium but from other area institution who are hosting relevant events. Colleagues from outside our region comment frequently about the richness of area events as evident from the online calendar. In 2012, for example, there were over 200 history of science events in the area. (See attached list of October 2012 events for an illustrative month during the academic year, p. 57.) Events in the calendar can be linked to an online RSVP system and, if needed, to a more detailed registration system which is particularly suitable to the academic community in that it allows registrants to download papers, maps and other information associated with an event. It can also allow for peer review of papers submitted for conferences. These capabilities are provided as a service to our community who often have limited budgets for events, let alone event administration, and they have dramatically increased efficiency in organizing and managing events in history of science, technology and medicine for academics and the public. Full use of these capabilities was made in the July 2012 "Three Society Meeting" which is held jointly every four years in mid-summer and brings together hundreds of scholars in history of science from the US, UK, and Canadian professional societies.

The Center's website also features an innovative cross-institutional search hub which allows researchers and the general public to easily search the manuscripts and rare books catalogs of nine member institutions. It has dramatically increased access to some 1.4 million catalog records (circulating collections not included) by acting as a common search interface and a connector between a member's individual online public access catalogs and the various Internet search engines, such as Google, Bing, or Yahoo. In the last year alone, this unified search system has answered more than 82,000 queries, which is a 170% increase over the previous year.

Impact of the Challenge Grant

Establishing an endowment for the Center's fellowship program will ensure the continuation of this relatively young program that has already achieved significant success as described in previous sections of this proposal. The fellowship program is currently funded by short-term grants and gifts from foundations and contributions by individuals. Securing an endowment will provide a firm foundation for the Center's current number of research, dissertation writing and postdoctoral fellowships. This is a crucial step in establishing the Center as a self-sustaining organization committed to increasing access for more historians to a wider range of archival collections in the history of science.

We plan to expend Challenge Grant funds as follows:

Total Grant Funds (NEH plus match):	$2,000,000
Rate of return to be expended:	5%
Projected annual income	$100,000
Use of endowment income:	
One Postdoctoral Fellowship stipend	$45,000
Two nine-month Dissertation Writing Fellowship stipends	$46,000
Research Fellowship stipends	$9,000

An endowment established with a Challenge Grant would support the Center's one postdoctoral fellowship with a stipend of $45,0000 as well as two dissertation writing fellowships with a stipend of $23,000 each. In addition, an endowment would provide $9,000 to help fund three to five research fellowships with an average stipend between $1,500 and $2,500. The Center currently devotes approximately $20,000 to $25,000 each year to research fellowships. As the Center moves to a national consortium, membership dues from additional members will help expand the research fellowship program. While this application is for funds to secure the fellowship program at its current size, we feel that based on the quality of the applicant pool the Center could support a program double the current size.

Fundraising for the Challenge Grant

The Center has followed a detailed strategic plan since it was established in 2007. That plan calls for establishing a strong record of successful programs in order to cultivate potential sources of endowment funds. Support during this startup phase has been provided by our consortium partners, foundations and individual donors. The Center has largely met the goals of that first strategic plan which called for reaching an operating budget of between $300,000 to $400,000 by 2012. We have raised $1.7M to date and our operating budget for 2012-2013 is $340,000. Sources of support have included the National Science Foundation, the Wyncote Foundation, Merck & Co. Inc., the Alfred P. Sloan Foundation, the Gladys Krieble Delmas Foundation, the Richard P. Lounsbery Foundation and several individual benefactors. The National Science Foundation provided $730,000 in start-up funding over six years. The Wyncote Foundation is providing $500,000 in operating expenses over three years.

Among these benefactors are several with whom the Center has developed strong relationships and from whom we are confident of continued support. For example, when we first met with David Haas, President of the Wyncote Foundation, we requested endowment support. Mr. Haas offered to provide three years of operating expenses after which, in July 2014, he would be willing to consider endowment support. The Wyncote Foundation would respond very positively to the endorsement of having been awarded an NEH Challenge Grant.

One anonymous donor in particular has steadily supported the Center's fellowship programs with annual funds, but has not yet contributed to an endowment. He is an avid supporter of the history of science at a number of major research universities in the United States, appreciates the Center's contribution to the field, and understand the Center's potential for future growth. In conversations over the last year, he has indicated that if the Center is awarded a Challenge Grant, then he is willing to consider a significant contribution over the next four years that will help the Center in its goal to raise

$1.5M.

The Board of Directors and the Center's Development Committee has worked to strengthen ties to the community. The Development Committee comprises former university presidents, retired and active executives from the health care and banking industries as well directors of cultural organizations and historical libraries. They are committed to establishing an endowment for the Center. We are confident that, with the NEH Challenge Grant serving as an incentive, we will be able to secure the challenge for this grant and establish a strong foundation for continued growth of the consortium and continued contribution to scholarship in the humanities.