The Andrew W. Mellon Foundation and JSTOR

William G. Bowen, president of the Andrew W. Mellon Foundation, relaxed in his seat as the jet returning him to New York City lifted into the air. Bowen had just come from Ann Arbor, Michigan, where he had performed a site visit to the JSTOR pilot project being undertaken by the University of Michigan’s School of Information. JSTOR was a Mellon initiative to digitize back issues of ten scholarly journals in order to increase access to older scholarship and to reduce the storage and maintenance costs imposed upon research libraries by costly journal subscriptions.

Bowen wasn’t happy with what he’d found in Ann Arbor. JSTOR was plagued with difficulties. The company subcontracted to scan journal articles and provide metadata (i.e., indexing) was only partially qualified to do the job, and quality control was suffering. The back runs provided to the scanning company had been incomplete—issues and whole volumes were missing from some journals, and some articles were found to have been torn out. Reconstructing the journal runs, some of which dated back to the nineteenth century, was turning out to be a monumental task. Although Michigan was nominally in charge of the scanning subcontractor, the University’s main task was developing computer software, and even that part of the project had hit snags. JSTOR hadn’t ground to a complete standstill, but it was becoming clear to Bowen that the project’s size and complexity were outstripping Michigan’s organizational capacity.1 And he understood that JSTOR would only grow larger in the near future.

As the plane touched down in New York, Bowen contemplated JSTOR’s future. JSTOR’s production operations would have to be revised, but how? After the pilot project was completed, should JSTOR find a permanent home at the University of Michigan, or would some other institutional arrangement better suit JSTOR’s mission?

THE MELLON FAMILY AND THE MELLON FOUNDATION

Born in Pittsburgh, Pennsylvania, in 1855, Andrew W. Mellon started work in his father’s bank at the age of 27 and quickly demonstrated a talent for finance. By investing in the aluminum, steel, and coke-oven (i.e., coal byproduct) industries, Mellon amassed an enormous fortune, ranking with John D. Rockefeller and Andrew Carnegie as the richest individuals in America in the early years of the twentieth century. With his brother, he founded the Mellon Institute of

Industrial Research, which became part of Carnegie Mellon University, and he served in the cabinets of Presidents Harding, Coolidge, and Hoover as Secretary of the Treasury. Mellon’s art collection, donated to the nation in 1937, formed the basis of the National Gallery of Art. Andrew Mellon died in 1937.

Upon the death of Andrew, his two children, Ailsa Mellon Bruce and Paul Mellon, came into substantial inheritances. In 1940 Ailsa established the Avalon Foundation, and the next year Paul established the Old Dominion Fund. The Avalon Foundation was dedicated to supporting higher education, hospitals, churches, environmental causes, youth and family services, and a wide variety of arts and cultural organizations. Avalon was instrumental in the founding of Lincoln Center in New York, among many other projects, and gave away approximately $67 million during its 28-year existence. The Old Dominion Foundation had a similar mission, promoting education, the arts, and conservation. An initiative at Old Dominion, the Bollingen Series, a publishing project dedicated to making available the works of Carl Jung, became a separate entity, the Bollingen Foundation, in 1945. The Bollingen Foundation ceased operation in 1969, with Princeton University Press taking over the publishing project. When Ailsa died, also in 1969, Paul Mellon folded the assets of the Old Dominion Fund into those of the Avalon Foundation. The new foundation, renamed the Andrew W. Mellon Foundation in honor of Ailsa and Robert’s father, had assets of $220 million. For purposes of comparison, note that the Ford Foundation, the nation’s largest, had assets of $1.76 billion in 1969.

As of 2005 the Andrew W. Mellon Foundation had assets of $5.58 billion, making it the ninth-largest private foundation in the country.

**The Problem of Storage in University Libraries**

Old books and academic journals, though seldom used, take up enormous amounts of space and require continuous maintenance to preserve. While the problem of storing and preserving old paper has been an unavoidable reality faced by thousands of libraries for hundreds of years, in the last quarter of the twentieth century scholarly journal collection became even more burdensome. The founding of whole new academic fields, such as molecular biology in the sciences and women’s studies in the humanities, increased substantially the sheer quantity of knowledge produced by the academy. The proliferation of academic sub- and subsubspecialties, along with the “publish or perish” rules of faculty employment and advancement, combined to create demand for a plenitude of scholarly journals.

A host of factors contributed to the rise in price of scholarly journals during the same period. The cost of paper and postage rose, along with publishers’ expectations for profit. Starting in the 1960s, journal prices, particularly those of scientific and technical journals, increased at greater than the rate of inflation. The sinking value of the dollar post-1971 made

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6 Schonfeld, p. 5.
overseas journals more expensive for American university libraries at a time when the importance of international publishing was increasing.\(^8\) Many libraries suffered from budgetary cutbacks due to structural deficits within the academy,\(^9\) and libraries overall received a smaller percentage of university budgets than in previous decades.\(^10\) As libraries pared back on their subscriptions, publishers raised prices on the subscribers that remained, creating a vicious cycle of rising costs and journal cancellations.\(^11\)

By the early 1990s, the situation had grown unsustainable. University libraries across the country were running out of stack space to store the decreasing numbers of journals they could afford to purchase. Something would have to give.

**The Mellon Foundation and University Libraries**

**William G. Bowen**
Born in 1933 in Cincinnati, Ohio, William G. Bowen attended Denison University as an undergraduate before earning a Ph.D. in economics at Princeton University, where he joined the faculty in 1958. Following research into the relationship between wages and prices in the postwar economy, he published a study of the effects of Princeton’s involvement with the federal government on the university and conducted research into the financing of higher education in Britain and the United States. His 1966 book *Performing Arts: The Economic Dilemma* (coauthored with William J. Baumol) examined the financial models of American theatre, opera, orchestra, and dance companies. This important study identified “cost disease” (also known as the Baumol Effect) as the fundamental problem that bedevils arts organizations.\(^12\) In most sectors of the economy, technology tends to increase work productivity. Baumol and Bowen noted that certain labor-intensive activities, such as an orchestra’s producing live symphonic music, undergo little or no growth in productivity over time. Relative to the rest of the economy, these activities become ever more expensive: they suffer from cost disease. If society wants certain things like orchestras that are irreducibly labor intensive, Baumol and Bowen argued, it must find a way to make them economically viable. In 1967, Bowen showed that cost disease afflicts libraries as well.

After serving as director of graduate studies at the Woodrow Wilson School and as provost of Princeton, during which time he proved instrumental in the university’s decision to admit women, Bowen was elected president of the university at the age of 38. As president of Princeton from 1972 to 1988, Bowen oversaw the demise of the university’s exclusive “eating clubs,” the completion of a $410 million endowment drive, and the opening of new facilities for dance, music, writing, and molecular biology.\(^13\) In 1988 Bowen left Princeton to become president of the Andrew W. Mellon Foundation.

**1992 Report**

The Mellon Foundation had a longstanding interest in supporting higher education and libraries, dating back to the days of the Avalon Foundation and the Old Dominion Fund. In 1989, recognizing that journal expense and storage were a growing threat to scholarship, Bowen and

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8 Okerson, “Synopsis.”
9 Schonfeld, p. 5.
10 Okerson, “Synopsis.”
11 Schonfeld, pp. 5-6.
Neil Rudenstine, executive vice president of the Mellon Foundation, commissioned a “study of the economics of research libraries.” The result, titled *University Libraries and Scholarly Communication*, was issued in the fall of 1992. The report laid out the nature of the problems facing university libraries:

- “The explosion in the quantity of desirable published material and a rapid escalation of unit prices for those items jeopardizes the traditional research library mission of creating and maintaining large self-sufficient collections for their users. Issues of pricing, acquisition, and collection are the focus of the study's sustained statistical analysis, which brings together kinds of information not often, sometimes not ever, gathered in one place before.

- “The rapid emergence and development of electronic information technologies make it possible to envision radically different ways of organizing collections and services the library has traditionally provided. Insofar as the finances of collection development approach a crisis, the new technologies offer possible mitigation and perhaps a revolution in ways of knowing.”

The report explored the possibility of libraries’ undergoing further automation; at that time library automation included mainly acquisition, cataloging, and circulation but not, for instance, sharing of resources through interlibrary loans. The report also speculated about the nature of electronic publishing, which was in its infancy, noting that “heterogeneity of access and retrieval protocols poses a real problem.”

Understandably, the authors of the report were unable to foresee the specific ways in which the spread of the Internet would transform publishing, scholarship, and library culture. (The World Wide Web had been launched only the year before; the White House, for example, didn’t have a website until 1993.) Nevertheless, Mellon Foundation officials felt confident that they understood the general direction technology was going, and they revised their grantmaking strategy accordingly. Bowen explained in his “Foreword” to the study:

This Foundation intends to continue to pursue aggressively a number of the issues raised in the report but not resolved. Specifically, we are examining the possibility of evaluating systematically some of the "natural experiments" in new modes of electronic publication and dissemination now going on, and we might simultaneously encourage the development of some carefully structured experiments designed to address some of the open questions of quality, means of access to materials, convenience, and costs.

A survey of preexisting “natural experiments” was undertaken by Mellon Foundation secretary Richard Ekman and Richard E. Quandt, a Princeton economist and advisor to the

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16 Okerson, “Synopsis.”
17 Okerson, “Synopsis.”
19 Bowen, “Foreword.”
Over the next seven years, Ekman and Quandt administered a grant program that distributed $19 million to promote the use of technology in facilitating scholarly communication. Among the recipients of Ekman and Quandt’s grants were Project MUSE at Johns Hopkins University and Project SCAN at the University of California.

Understanding the Possibilities

In late 1993, William Bowen attended a meeting of the board of trustees of his alma mater, Denison University. The Denison library had reached full capacity; there was nowhere to put new book and journal acquisitions. The only possible response to the problem was to create more shelf space, and accordingly, Denison’s administration had requested board approval for a large and expensive library expansion project. Bowen, with his background as a university administrator and analyst of the economies of libraries, was uniquely qualified to understand the perennial nature of the problem facing Denison’s administration and board. And as president of a large philanthropic foundation, he was uniquely positioned to do something about it.

Ekman and Quandt’s 1992 report had suggested that “miniaturization” through computer technology was promising. Bowen returned to the Mellon Foundation inspired to find some way to apply miniaturization to the problem of library storage.

Bowen initially assumed that miniaturization would take the form of page photographs downloaded onto CD-ROMs (similar in principle to the reels of microfilm and sheets of microfiche commonly used in libraries). He understood that although the upfront cost for any one institution’s undertaking a miniaturization program might exceed the money saved in storage space, a coordinated effort among many libraries, with the results shared among all participants, would alter the economics of the project.

Because books have individual copyright holders, the logistics of gaining permission to store books in a new format would be prohibitive. Journal article copyrights, by contrast, are generally held by their publishers. Bowen reasoned that the relatively small pool of journal publishers would be easy to negotiate with, and the cost of securing copyright for works the publishers had long since ceased making money from would probably not be prohibitive. For these reasons, Bowen concluded that journals, rather than books, should be the initial candidates for miniaturization. He estimated that in order for a miniature library of journals to be useful, it must contain 10 to 20 titles, or between 500 and 2000 years’ worth of material, totaling perhaps a million pages.

To get the project started, Bowen called upon Ira Fuchs, who in 1981 had helped create BITNET, a university computer network that predated the Internet. Fuchs was also a former vice president for Computing and Information Technology at Princeton under Bowen. When Bowen told Fuchs that he wanted to digitize a million journal pages, Fuchs was skeptical:

I certainly knew Bill well and I knew that, unless I thought that the laws of physics made it impossible, you don’t say that it can’t be done. But no one had ever done anything like it on that order of magnitude.

Fuchs was aware that CD-ROM technology was already becoming outdated; he recommended that the project be distributed through a network. Network distribution, he pointed

20 Schonfeld, p. 7.
21 Schonfeld, p. 7, p. 8 (fn).
22 Schonfeld, p. 10.
23 Schonfeld, p. 9.
24 Schonfeld, p. 9.
25 Quoted in Schonfeld, p. 13.
out, would eliminate the need for libraries to catalog and store thousands of CDs, while also increasing availability.

After meeting with Fuchs, Bowen consulted with Richard Ekman and other Mellon staff. Ekman, in turn, met with Bill E. Buchanon of the International Archives Institute (IAI), which been doing related work in digitizing documents. Ekman and Buchanon estimated the cost of a scanning a million pages to be $80,000 if text-unsearchable, and $2 million if fully searchable.26

Ekman also met with Harvard College librarian Richard DeGennaro, who had been working on creating an electronic bibliographic index, the Periodicals Content Index (PCI) of selected journals. With PCI, only the tables of contents were digitized; the journals themselves were stored off-campus and retrieved as needed. DeGennaro had learned that faculty were unhappy with the system, as it didn’t allow for casual browsing through journals, and he had proposed expanding PCI to include the actual contents of 30 leading journals. Faculty and students at Harvard (but only at Harvard) would have electronic access to the journals. DeGennaro had been advised that because access would be limited, copyright would not have to be secured under “fair use” doctrine. There were no plans to make PCI journals available outside Harvard.

Ekman reported what he’d learned from Fuchs and DeGennaro to Bowen in early 1994. Bowen then went to look for a partner to implement the project whose outlines were beginning to take shape.

Formulating Strategy
Choosing the Journals

First Bowen needed to determine which journals to include in the pilot project: should they be the widely used, most important titles, or specialized, seldom used titles? On the one hand, it made sense to digitize highly specialized titles so that the rarely touched physical copies could be removed from the stacks. On the other hand, most existing bibliographic databases indexed journal articles only back to the 1970s. Older articles were essentially lost to scholarship. Making the indexed back numbers of academia’s central journals (many of which dated to the nineteenth century) available would open up important new worlds of scholarship. Furthermore, most university libraries collected a given discipline’s central journals while collecting fewer of the specialized journals; if the point was to save library space, it made sense to digitize the journals that most libraries collected. Thus Bowen decided that the project would start off by digitizing important, rather than obscure, journals.

As for which disciplines to include, Bowen concentrated on the humanities and social sciences for several reasons. First, most hard-science publishers were large, for-profit corporations. By contrast, most arts-and-sciences publishers were nonprofits; presumably, securing the rights to arts-and-sciences journals would be cheaper. Also, Bowen believed that more libraries, at more institutions, collected arts-and-sciences journals than hard-science journals. In researching which journals to include in the pilot project, Mellon Foundation staff discovered that some university libraries even collected more than one copy of certain important arts-and-sciences journals, making the potential space savings even greater.27 Digitizing arts-and-sciences journals would save the most libraries the most space.

In the end, Bowen settled on 10 important journals in economics and history. Every issue of the 10 participating journals published before 1990 would be scanned and digitized.

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26 Schonfeld, p. 7
27 Schonfeld, p. 22.
By the spring of 1994, Bowen and staff at Mellon had conducted preliminary research into the expected cost of journals digitization and had determined which journals would be included in the pilot project. Like many large foundations, Mellon Foundation staff didn’t usually carry out their own projects; rather, they funded outside entities to implement projects. Should Bowen find a grantee to implement the journal digitization project? Should the Foundation continue to the driving force behind the project? What were the pros and cons of relinquishing control?

**Forming the JSTOR Committee**

For want of a better name, the Mellon Foundation journals digitization project had come to be known as JSTOR (for “Journal Storage”), after the ad-hoc file name on Bowen’s computer subdirectory. In early March 1994, the Foundation convened a JSTOR advisory committee that included William Bowen; Richard Ekman; Richard Quandt; Ira Fuchs; Richard DeGennaro; Mary Patterson McPherson, president of Bryn Mawr College; Michael McPherson (no relation), economics professor at Williams College; Denison University librarian David Pilachowski; intellectual-property attorney Richard C. Woodbridge; and Mellon staff members Perry van Der Meer and T. Dennis Sullivan.\(^{28}\) The committee, comprised of individuals with academic, library, legal, technical, and economic backgrounds, was well suited to address the variety of issues raised by the JSTOR project.

The committee debated whether the Foundation should join in partnership with the for-profit company University Microfilms, Inc. (UMI), the Ann Arbor, Michigan-based owner of a large backlist of microfilmed journals. Foundation staff initially believed that that UMI’s miniaturization license from the publishers was exclusive; if that were the case, UMI’s participation in the project would be necessary. Woodbridge, however, reported at the committee’s first meeting that he believed UMI’s license was nonexclusive; that is, the publishers were free to enter into contract with JSTOR.\(^ {29}\)

In the weeks that followed, Mellon staff sorted out many of the technical details of JSTOR’s architecture: fidelity of electronic image to the printed page, navigability, full-text searchability, delivery mechanism (network v. CD-ROM), and so on. The presidents of Bryn Mawr College, Williams College, and Denison University volunteered their institutions as JSTOR test sites; several other colleges and universities, including Harvard, expressed interest as well.

Two weeks after the initial JSTOR committee meeting, Bowen traveled to Ann Arbor to meet with representatives of UMI. He learned that UMI’s license would not allow it to enter into a partnership with JSTOR without the consent of the individual publishers. The idea of partnering with UMI was dropped.

**Creating a Financial Model**

Meanwhile, JSTOR’s financial model was taking shape. The Mellon Foundation committed to bearing all costs of the pilot project, including those related to the creation or licensing of software, scanning, and copyright permissions. Publishers would receive no royalties, and in return, the Foundation would provide a digitized version of the designated journals. The Foundation also assured publishers that participation in the project would entail no loss of revenue. (Because the publishers weren’t making money on journals that had been published years and even decades before, it was easy for them to accept the Foundation’s

\(^{28}\) Schonfeld, p. 25.

\(^{29}\) Schonfeld, p. 26.
assurances.) Last, the publishers’ agreements with JSTOR were nonexclusive; they were free to sell back issues to interested parties.30

With the financial model in place, Bowen contacted the University of Chicago Press, publisher of two of the target journals. As the former president of Princeton, Bowen was friendly with several high-level administrators at Chicago. UC President Emeritus Hanna Gray also happened to be on the board of trustees of the Mellon Foundation. Bowen spoke to the publishers and editors of several of the targeted economics and history journals. Several of the publishers, including UC Press, balked at the idea that the agreement with JSTOR should be in perpetuity. They wanted to protect their right to seek revenue in the future from their back numbers. Bowen held firm, arguing that the whole point of JSTOR was to enable libraries to save space by removing back numbers from their shelves; if publishers’ agreements with JSTOR could expire, then libraries would have to keep the journal hard copies on the stacks just in case. Bowen and the publishers compromised by limiting the number of subscribing JSTOR institutions to 50 colleges and universities; when that number was reached, the parties would renegotiate terms for further expansion. (Several other publishers agreed to the terms of Bowen’s original proposal, which had no limit to the number of participating institutions.) Perpetuity was preserved.

Partnering with the University of Michigan

With the broad outlines of JSTOR’s architecture and financing in place, Bowen set out to find an institutional partner to help implement the project. For a number of reasons, the University of Michigan was the obvious choice. First, Michigan’s library school, renamed in 1992 the School of Information and headed not by a librarian but by a professor of engineering, was especially forward thinking about technology. Second, the university was already deeply involved in developing an experimental online scholarly-journals publishing project called TULIP (for The University Licensing Project), launched by Elsevier Science publishing company. Finally, the Mellon Foundation had a long and fruitful relationship with the University of Michigan; from 1972 to 1993, Mellon had awarded Michigan grants totaling $15.4 million.31 On a personal level, Bowen and other Mellon staff knew and trusted key members of Michigan’s faculty and administration.

In July the JSTOR committee met for a second time, mostly to hammer out technical details of software and digitization. The committee agreed that Michigan’s expertise in software would be critical for the project. Fuchs estimated that Michigan already possessed “80 percent” of what JSTOR would require.32 He told Bowen that Michigan should be brought on board as soon as possible. Less than two weeks later, Bowen and Fuchs traveled to Ann Arbor to meet with representatives from Michigan, including Provost Gilbert Whitaker. Though some individuals at Michigan were concerned about JSTOR’s size and the rapid rollout schedule (a demo in ten weeks, final product online in six months), Bowen, in a memo summarizing the trip, described it as a success:

My overall impression of the Michigan group was extremely favorable. The individuals seemed very smart, and, in addition, they had the same view of the mission to be served and objective of the enterprise. Ira [Fuchs] and I were both very comfortable. It is evident that we share a common “culture.” I believe that we could work happily and productively together.33

30 Schonfeld, p. 34.
31 Schonfeld, p. 56.
32 Quoted in Schonfeld, p. 61.
33 Quoted in Schonfeld, p. 62.
Within days, Randall Frank, Michigan’s Director of Information Technology, had written up a grant proposal. The proposal outlined a plan to modify the University’s software to fit JSTOR’s needs, pay the salaries of two librarians who would assist with the test-site locations, and subcontract a scanning vendor. Mellon awarded Michigan $700,000 to cover the costs (excluding those for the scanning subcontractor, which would come later). Under the terms of the grant, Michigan would retain ownership of the software, but Mellon would receive a nonexclusive license for its noncommercial use. Furthermore, any hardware purchased by Michigan with the grant would belong to Mellon. Bowen insisted on this unusual arrangement (Mellon grantees usually got to keep anything they bought with grant money) because while he knew and trusted the people at Michigan, he wanted the Foundation to be able to move the project elsewhere if Michigan didn’t work out in the long term.

Launching the Pilot Project

After an evaluation of the available technologies, the Foundation concluded that hard-copy versions of the journals, rather than microfilm, would be the source for digitization. Libraries at Michigan and Harvard agreed to provide their journal collections for scanning. Mellon provided Michigan a grant of $1.5 million to pay the scanning subcontractor.34 A company called Digital Imaging & Technology (DIT) won the competitive bid. DIT also agreed to provide the metadata (i.e., indexing) necessary for navigability within a given journal from contents page to article page.

Unfortunately, the process of scanning hundreds of thousands of journal pages proved to be a more difficult task than anyone at Mellon or Michigan had anticipated. While DIT was well-qualified to do scanning work, it had little experience at creating metadata. Judgments had to be made about what constituted “content” for indexing: should articles with subsections authored by individual authors be indexed only once, or should the subsections be indexed separately? How should advertisements, book reviews, and other miscellaneous content be treated? DIT personnel didn’t have the necessary scholarly backgrounds to make such decisions, and the company’s first efforts were judged by Michigan staff to be inadequate. Furthermore, DIT discovered that some of the journal runs provided by the libraries at Harvard and Michigan were incomplete—articles had been ripped out, and some issues and whole volumes were missing. DIT scanned what it had, while staff at Michigan scrambled to negotiate with other libraries to provide the missing items. Then the librarians at Michigan discovered that their task was complicated by the fact that some journals had highly erratic histories. Certain journals had been issued with unpredictable frequency—sometimes monthly, sometimes quarterly, sometimes, as during World War II, not at all. Reconstructing the journal runs was turning into a mammoth task.

The day-to-day overseeing of the scanning process was something staff librarians at Michigan weren’t prepared to do. Nor were staff at Mellon. It was a much larger, more complicated undertaking than anyone had anticipated. On the software side, developers at Michigan were running into problems of their own. Incorporating the metadata, flawed as they were, into the image files was proving to be a difficulty. Website design was in its infancy, and the creation of a usable interface was slow and painstaking. Making the articles printable was another technical problem with a complicated, slow-developing solution. Meanwhile, users at the five test sites—Bryn Mawr, Harvard, Haverford, Michigan, Swarthmore, and Williams—began providing feedback about what worked and what didn’t.35

In March 1995, Bowen visited Ann Arbor and learned about the problems plaguing JSTOR. Though JSTOR had not been demonstrated in the real world—the test sites had yet to

34 Schonfeld, p. 75,
35 Schonfeld, p. 163.
receive the data—Bowen had become convinced that JSTOR had enormous potential. He believed that JSTOR would prove useful beyond Mellon’s traditional constituency of highly selective colleges and research universities. But neither the University of Michigan nor the Mellon Foundation seemed well suited—or interested—in being JSTOR’s permanent home. As Bowen flew back to New York, he contemplated the future of JSTOR.

What did the University of Michigan bring to the development of JSTOR? What measures did the Foundation take to ensure its partnership with Michigan would be a successful one? Could the problems with scanning have been foreseen? What might Bowen do to enable JSTOR to function more smoothly?

AN INDEPENDENT JSTOR

In pondering JSTOR’s future, Bowen considered several factors. The Mellon Foundation could not commit to supporting JSTOR (or any other project) indefinitely. Librarians could not trust in JSTOR’s continued existence if it continued to depend on Mellon’s, or any other foundation’s, transitory funding. If, as Bowen believed, JSTOR offered a valuable product, then institutional subscribers would be willing to pay for it. But federal tax code prohibited charitable foundations from raising money by selling services. To guarantee its perpetuity, Bowen concluded, JSTOR would have to become a self-sustaining entity.

The federal tax code, Bowen later said, was the crux of the matter: “[T]he decision to pursue independence was driven by a single fact, which was that libraries needed to pay and Mellon couldn’t take their money.”

In April, Bowen met with the JSTOR committee a third time, to discuss JSTOR’s future. Though JSTOR had yet to be launched at the test sites, university librarians were already lobbying the Foundation to expand the scope of the project in terms of both journals and participating libraries. The committee debated which disciplines might be added to the existing two (economics and history) as well as which institutions might be allowed access to the database.

In the following months, plans to expand JSTOR proceeded, as did the plan to establish it as a separate entity. Mellon staff evaluated several options for how to cleave JSTOR off from the Foundation:

1. As a university satellite. Under this plan, JSTOR would be located in Ann Arbor and affiliated with the University of Michigan. Never well defined, the plan fizzled due to lack of interest on the part of the university.

2. In a partnership with a library cooperative. A number of vocal librarians suggested that JSTOR be folded into the Online Computer Library Center, a nonprofit with over 50,000 member libraries, or some other, similar organization that tries to centralize library functions, such as the Research Libraries Group or the Center for Research Libraries. Foundation officials felt that each of the proposed library cooperatives had important drawbacks, and all of them put

36 Schonfeld, p. 98.
37 Schonfeld, p. 97.
38 Quoted in Schonfeld, p. 7
the interests of libraries first; whereas JSTOR had to consider the sometimes competing interests of libraries, publishers, and scholars.

3. As part of an umbrella organization. Dan Atkins, the engineer who led Michigan’s School of Information, suggested to Bowen in June 1995 that JSTOR join up with other nonprofit digitization initiatives to form an umbrella organization. Like the university satellite idea, the umbrella organization suggestion was never well defined and went nowhere.

4. As an independent organization. As Bowen surveyed the options, he became convinced that JSTOR should become a standalone entity. As a standalone, it could most easily adapt to new conditions and technologies while staying true to its mission.

The question remained: should JSTOR be incorporated as a nonprofit or a for-profit? At the June meeting of the Mellon board, Bowen asked the trustees to consider the two options. As a for-profit corporation, JSTOR could raise funds quickly for expansion. (The dot.com boom was just getting underway, and venture capital was readily available.) But the trustees weren’t convinced that JSTOR would need a large infusion of capital up front. JSTOR might be better off growing slowly and learning as it went. More importantly, the nonprofit institutions—libraries and publishers—with which JSTOR dealt would trust the motives of a nonprofit more than those of a for-profit. The trustees, and Bowen, concluded that JSTOR should be founded as a nonprofit.39

**Founding the new JSTOR**

Bowen’s first step was to create a provisional board of directors, with himself as chair, for the new organization. JSTOR’s board included Ira Fuchs; Richard DeGennaro; Mary Patterson McPherson; Gilbert Whitaker; Mellon trustee Taylor Reveley, a prominent attorney; Cathleen Synge Morawetz, past president of the American Mathematical Society; and Elton White, a former president of NPR.40

On July 31, 1995, JSTOR was formally incorporated. Four days later the board named Kevin Guthrie, a Mellon staff member who had taken over leadership of JSTOR from Bowen in June, executive director.41

In his first few months as head of JSTOR, Guthrie hired staff to assume some of the tasks that Michigan was unable to fulfill effectively. At the same time, Guthrie worked with Bowen to improve the production arrangement at Michigan, with varying amounts of cooperation from the university. Guthrie’s ability to effect change at Michigan was limited by the fact that the university viewed its involvement with JSTOR as essentially a grant-funded research project, not as a digital library production business. The transformation of the relationship between Michigan and the new JSTOR nonprofit would be slow and delicate.

The Mellon Foundation’s involvement with JSTOR didn’t end when it became an independent organization. Upon its founding, JSTOR had no capital (Michigan was still administering the Mellon grants). In November, JSTOR applied for and received a $50,000 grant from Mellon as a stopgap to cover a few weeks’ office expenses and salaries. Guthrie drew up a preliminary business plan, which projected a first-year loss of $1.5 million; the plan estimated that JSTOR would cease operating at a loss in 1997 at the earliest. A month later, JSTOR received a grant of $1.5 million to fund the next year’s expected expenses.42

Throughout 1996, Guthrie, Bowen, and JSTOR staff worked successfully to improve production procedures at Michigan, even as JSTOR “[evolved] away from a close relationship

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39 Schonfeld, pp. 100-107.
40 Schonfeld, p. 112.
41 Schonfeld, p. 113.
42 Schonfeld, p. 116.
with Michigan and its other digital library projects. Nine more test sites were added to the five already up and running.

By January 1997, 17 journals had been fully digitized, and JSTOR was made available to the public. During the first four months of 1997, 190 institutions signed up as charter subscribers to JSTOR—greatly exceeding JSTOR’s in-house estimates, which ranged from 50 to 120.

By 1997, the Mellon Foundation had spent $5.2 million developing JSTOR. Mellon also contributed $1 million in March of that year to provide access to JSTOR to several private, historically black colleges and universities. Mellon would continue providing funds to JSTOR even after it had become financially self-sustaining. These grants have ranged in purpose from adding new journals to the database to spreading access to JSTOR to universities in Eastern Europe.

As of summer 2007, the JSTOR digital archive includes more than 700 scholarly journals covering a wide range of topics in the humanities, social and natural sciences, mathematics, business, and more. More than 3.7 million articles are available through JSTOR, representing a total of some 23.9 million pages. And JSTOR is widely used. More than 3,400 schools and libraries in 86 countries are fee-paying members. In the first half of 2007, users viewed more than 17.8 million pages of content and printed over 26.8 articles from the JSTOR archives. JSTOR has been fully self-supporting since 1999.

While JSTOR had considerable upfront costs and does have recurring costs, these costs are far outweighed by the savings it creates. Libraries are able to economize stack space and require fewer librarians to manage their collections. In October 2000, Bowen estimated the system-wide savings in library capital costs to be at least $140 million.

JSTOR’s impact in giving millions of people access to a huge deposit of scholarly resources is impossible to quantify. Membership fees from participating institutions are on a sliding scale based on projected usage and ability to pay. Fees are set so as not to discourage small, relatively underfunded libraries from joining. Journals previously inaccessible to scholars in major research universities, let alone to students in smaller, less well funded colleges and universities worldwide, are now available to anyone associated with an institution that subscribes to JSTOR.

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43 Schonfeld, p. 228.
44 Schonfeld, p. 163.
45 Schonfeld, p. 236.