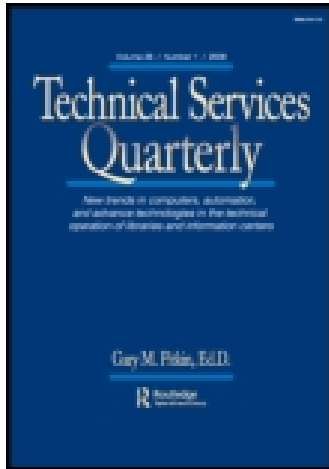


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Sustainability in Library Preservation

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Many in the library world are embracing sustainability initiatives in an effort to better serve our communities and planet. In this article the author explores the need to integrate preservation within the broader approach to library sustainability, as well as the challenges presented by sustainable preservation practices. The author addresses concerns including reducing the amount of waste produced, recycling options, and availability of environmentally friendly supplies through the presentation of a case study. In addition, the article further explores the complexities of sustainable preservation by promoting continued discussion on finding the balance between accepted preservation best practices and emerging trends in sustainable solutions.

KEYWORDS *sustainability, libraries—preservation, libraries—environmental aspects, environmentalism*

Many in the library world are embracing sustainability initiatives in an effort to better serve our communities and our planet. Libraries are in a unique position to influence and educate the public, and many have taken the opportunity to lead by example. However, most systems do not exist independently. It is important to evaluate a library system as a whole and to include sustainable practices in all aspects of library operations. Integrating library preservation into a broader sustainability approach can create both unique challenges and surprising opportunities. Preservation professionals are tasked with the primary priority of preserving the materials in their care, and often the need for vetted archival supplies, accepted best practices, and proper preservation environments can create direct conflict with sustainable ideals. Through continued research, creative problem solving, and open

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discussion we hope to find the balance between accepted preservation best practices and emerging trends in sustainable solutions.

DEFINITION AND SCOPE

The *Oxford English Dictionary* defines sustainable as “capable of being endured or borne; bearable.” Linking the term sustainability to environmentalism did not emerge until the 1970s and 1980s and the link was ultimately pushed into “international prominence and instant authority” by the Brundtland Report released in 1987 (Ricketts, 2010, p. 44). The Brundtland Report is by The World Commission on Environment and Development (WCED), a group which was commissioned to:

Re-examine the critical environment and development issues and to formulate realistic proposals for dealing with them; to propose new forms of international cooperation on these issues that will influence policies and events in the direction of needed changes; and to raise the levels of understanding and commitment to action of individuals, voluntary organizations, businesses, institutes, and governments. (World Commission on Environment and Development, 1987, p. ES-3)

The Brundtland Report coined one of the most widely used definitions of sustainability, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Du Pisani, 2006, p. 83). Since then the definition of sustainability and the issues to which it is applied have grown in both scope and flexibility.

Many proponents of creating more sustainable communities have adopted the “triple bottom line” framework of sustainability, which consists of not only environmental sustainability, but economic and social sustainability as well. Advocates of the triple bottom line framework believe that these three areas of sustainability naturally combine to create a more holistic approach to sustainable businesses and communities (Marshall & Toffel, 2005). In fact, it can be very difficult to isolate just one aspect of the triple bottom line framework. In many cases, making decisions based on one of the three aspects will inadvertently affect the other two. For example, making a decision based solely on environmental factors, such as reducing the amount of energy used, can also be seen as an economically sustainable decision as well.

The American Institute for Conservation of Historic and Artistic Works (AIC) defines preservation as “The protection of cultural property through activities that minimize chemical and physical deterioration and damage and that prevent loss of informational content. The primary goal of preservation is to prolong the existence of cultural property” (AIC, 2013). Library preservation can encompass a wide range of activities that prevent damage to

library materials, including environmental monitoring, proper housing and storage, and disaster planning. Library preservation can also include aspects of conservation such as treatment, replacement, and reformatting of individual materials due to existing damage (Northeast Document Conservation Center, 2006). A comprehensive preservation program encompasses both preservation and conservation measures; however, oftentimes preservation needs can vary greatly between different types of institutions. For example, consider the needs of a large academic library versus those of a small public library. This article focuses mainly on creating more sustainable practices throughout a comprehensive preservation program at an academic library, although that is not to say that the ideas and examples discussed cannot be adapted to other types of preservation programs.

THE GREEN LIBRARY MOVEMENT

Even before the ideology of sustainable development was popularized in the 1980s libraries had already begun to look at sustainable practices. According to Abbey (2012), several library organizations led initiatives to respond to “concerns about widespread misuse of natural resources and pollution in the United States” as early as the 1960s (p. 95). Soon, libraries were quickly embracing the challenge of creating more sustainable communities. According to Antonelli (2008), “The [Green Library] Movement emerged in the early 1990s and gained popularity in the library profession around 2003,” (p. 1) and the movement “comprised of a growing number of librarians, libraries, cities, towns, college and university campuses committed to greening libraries by reducing their environmental impact on the planet” (p. 1).

LITERATURE REVIEW

Just as the word sustainability can have multiple definitions and uses depending on context and intent, so too can the implementation of sustainable practices and ideals. It can be difficult to extract one area of sustainability from the whole; in order to be truly sustainable, all aspects of a system must be considered. As a consequence, many libraries are taking a holistic approach to sustainability, and the literature reflects that approach with articles and case studies spanning several topics, oftentimes within the same work, and arguing for a more comprehensive approach to sustainability in libraries. Jankowska (2010/2011) cautions that “The creation of institutional green policies needs to be integrated into libraries’ collection policies, services to the public, operation of the buildings, licenses with vendors and publishers, preservation and digitization policies, and purchase of equipment and products” (p. 34).

Schaper (2010) addresses this very issue when writing about the Fayetteville Public Library (FPL) in Arkansas. The library had just moved into a brand new LEED-NC (new construction) silver certificate facility. Schaper notes “After the Blair Library opened, I became acutely aware that our green library’ was designed and built on a set of values that were not being carried out in day-to-day operations” (p. 6). Schaper goes on to state “Operating green means more than recycling. It’s a change of perspective that makes your library stronger, richer, and healthier for your staff and the public. Operate your library in ways that don’t compromise the ability of future generations to meet their needs. That’s sustainability” (p. 7).

Though much of the literature on sustainability in libraries is a combination of multiple topics, it is possible to identify and separate several key areas that, arguably, have a direct relationship with library preservation practices—building design, and resource management and operations.

BUILDING DESIGN

Much of the literature on “green” library buildings and construction focuses primarily on the environmental aspect of sustainability and consists of multiple case studies of specific libraries and their journey to a greener, more environmentally friendly building. Many articles discuss the ambitious goals of the design process and specific features included in the newly built or newly renovated buildings.

The literature on sustainable building design highlights what is possible when sustainability is a consideration from the very beginning. Tseng’s (2007) write-up of the planning and construction of a new “eco-building” to house the Taipei Public Library (Taiwan) includes an impressive list of sustainable features including but certainly not limited to a lightweight roof equipped to produce solar energy, plants and trees on the roof to block direct sunlight and decrease the burden on the air conditioning system, and vented walls to attract birds to nest as well as to provide natural lighting and ventilation.

Several of the case studies presented in the literature draw attention to the role of the community in designing greener public spaces. Schaper (2003), again writing about the Fayetteville Public Library, reveals that “the commitment to build a green library came from an intense public process of open meetings and deep community dialog about what a library is and can be and what its design and construction should be” (p. 62).

Others see the move toward sustainability as the perfect opportunity for libraries to lead the way in their communities. Edwards (2011) explores how the drive for sustainability is leading to new approaches in library design and suggests that “environmental sustainability provides the opportunity to revitalize the design of public libraries and to transform them into structures

worthy of their place as carriers of environmental messages in text and built form” (p. 192).

RESOURCE MANAGEMENT AND OPERATIONS

For many libraries and institutions, renovating or constructing a new green building is not always feasible. Instead, libraries often take a closer look at their daily operations in order to find ways of creating sustainable practices. The literature in this category is filled with case studies offering first-hand experience in implementing many of the practices used by libraries looking for more sustainable ways to operate. Covering topics including recycling, energy use, and collection management, some articles take an in-depth look at very specific topics, such as Kruse’s (2010) “Sustainable Interlibrary Loan Packaging,” or Cunningham’s (2012) “Partnering for Paper Reduction” which describes the Gerstein Library’s (University of Toronto) pilot paper-reduction project in collaboration with the University’s Sustainability Office. Other writers in this group provide case studies that encompass a broader, more rounded approach to sustainability, such as Vesque-Jeancard’s (2008) write-up of the comprehensive system-wide approach to sustainability adopted by the National Library of France.

Sustainable approaches to collection development and management are also discussed. Connell (2010) explores three facets of collection management in relation to sustainability: “Selection of materials whose content informs and assesses green practices; de-selection processes that make the most of the green mandate to reuse and recycle materials; and selection of a material format, specifically print or electronic, that honors the green dictum to reduce the carbon footprint an institution makes” (p. 2). Chadwell (2012) asks the question, “How do the concepts of sustainable development or sustainability apply to the work of collections managers?” (p. 4) and answers by detailing the potential dilemmas collection managers face when adopting more sustainable practices, such as choices to downsize print collections, sustainable budget allocations, and the cost of shelving low-usage materials (Chadwell, 2012).

SUSTAINABILITY IN LIBRARY PRESERVATION

While quite a lot has been written about sustainability in libraries, the literature available specifically on sustainability in library preservation is limited but not absent. Articles often mention preservation when creating more sustainable practices, but preservation is usually alluded to briefly within a discussion about more general sustainability ideas. For example, in his

article on building design, Edwards (2011) addresses the problem of sunlight, stating “Sunlight is a problem that has to be addressed—it fades books and their bindings, it makes screen reading difficult, it raises interior temperatures, it causes glare and visual discomfort. However, daylight is rarely a problem except for special collections and other archival material. So one crucial aspect of energy design is the control of sunlight without eliminating the benefits of daylight” (p. 200).

One of the few in-depth looks at sustainability in library preservation is a report on research conducted by the Image Permanence Institute (IPI), in which Linden, Reilly, and Herzog (2012) explore “whether energy usage can be significantly reduced in libraries by carefully monitored and risk-managed shutdowns of Air Handling Units (AHUs) during unoccupied hours in selected spaces without compromising the quality of the preservation environment” (p. 385).

Coming from the perspective of museum conservation, Staniforth (2010) explores the idea of “slow conservation,” inspired by the concept of slow movements—popularized by the slow food movement of the 1980s. Members of the slow food movement are interested in “retaining our diverse heritage of regional food and drink, and protecting it from unthinking globalization, but are increasingly aware of the associated environmental issues” (p. 74). Staniforth (2010) also describes how the principles of the slow movement can be applied to museum conservation and proposes a slow conservation manifesto, which includes considering the environmental impact of museum activities; the consideration of local climate versus global standards; the use of high standard preventative conservation; taking advantage of local experience and traditional conservation skills; and involving trainees, volunteers, and the community in conservation activities. Despite the fact that Staniforth (2010) is writing from a museum viewpoint, she repeatedly invites the reader to substitute galleries, libraries, and archives for the word “museum,” demonstrating the potential to draw on related disciplines when developing sustainable library practices.

Another preservation-related discipline worth exploring is that of sustainability in archives, as preservation plays a definite role in most archive policies and procedures. As with preservation, the literature dealing with sustainability in archives is also scarce, but there are several key works to consider. Wolfe (2012) explores how increases in efficiency can create a Jevon’s paradox—“when improvements in efficiency to a system or process result in an increase in use (instead of a decrease) of a resource” (p. 35) and states that “green technologies alone are not enough to ensure sustainability. They must be deployed in concert with a systematic use of archival practices and theories for environmental sustainability to be ensured” (p. 35). Also searching for information on sustainable practices in archives, Abbey (2012) reviewed literature from both the library science and museum studies fields, which “yielded extensive research on green strategies and best practices in

libraries and museums—but not in archives” (p. 92). Abbey (2012) goes on to provide a comprehensive literature review of sustainability in libraries and museums, arguing that “the existing body of guidelines developed by libraries and museums can be applied easily to the world of archives. Yet, while the professions are indeed allied, they are distinctly different. This perhaps calls for a separate sustainability framework and unique tools for archivists that are informed by and adapted from current best practices” (p. 92).

SUSTAINABLE LIBRARY PRESERVATION PRACTICES AT MIAMI UNIVERSITY

Miami University (MU) is an Ohio public university founded in 1809. With a student body of roughly 16,000, MU’s focus is teaching undergraduate students and offers bachelor’s degrees in over 100 areas of study. The library system at MU includes six separate spaces, one of which is open 24/7. Last year we saw approximately 30,000 in-person visitors in a typical week and circulated a total of 157,000 items.

MU, along with the libraries, has begun implementing sustainability initiatives and practices across campus, including efforts to recycle, compost, and reduce energy use. As exemplified by the literature, there are various ways to implement sustainable practices, many of which can be adapted across departments and institutions. It is important when embracing sustainability to take a system-wide, holistic approach. Most departments and operations within a library do not exist completely independent of one another. It is becoming harder and harder to separate one aspect of sustainability from the whole; taking one approach to sustainability while ignoring others can be detrimental to the overall goal of creating a more sustainable system. However, just as with other specialized areas of librarianship, creating sustainable preservation practices comes with its own set of unique complexities which need to be addressed in order to make sure library preservation is seamlessly integrated into a library’s overall approach to sustainability.

MU Libraries is fortunate to have a dedicated preservation department to oversee preservation activities within the libraries. Much of the following case study outlines specific steps taken by the preservation department to create a more sustainable program.

Reducing the Amount of Waste Produced

One of the main motivations behind re-evaluating the sustainability of the preservation department was the sheer volume of trash being produced

by our everyday activities. Waste leaving the preservation department on a daily basis was made up mostly of scrap materials—barrier board, Davey board, book cloth, paper scraps, Mylar scraps, and acrylic sheeting scraps. Reducing the amount of waste produced was our first step in designing a more sustainable program. To accomplish this, we looked at two key areas of our operation: treatment decisions and cutting materials. Certain preservation and conservation treatments, such as box construction and re-casing, are much more material intensive than other alternatives. When choosing a treatment option for a specific item, the time and materials involved in that treatment need to be considered. A treatment decision tree was created by the preservation librarian that takes into account several variables specific to the item in question, such as value, condition, volume of use, circulating versus non-circulating, and available copies. The decision tree ensures that the appropriate level of treatment will be applied to each specific item (see Figure 1).

After a treatment decision is made, a variety of raw materials are then used to carry out the various treatment options. When cutting raw materials, staff and students are highly encouraged to make the most efficient cuts as possible, in order to get the most out of a sheet of material and limit the creation of smaller, unusable scraps. Staff and students are also encouraged to use scrap material whenever possible *before* cutting into a new sheet of material.

Finding Alternative Uses for Scrap Material

Despite our best efforts, there is almost always scrap material that is rendered unusable. Usually these scraps are too small to use in everyday repairs and treatments. We have come up with a variety of solutions to keep these scraps out of the trash, including setting scraps aside for samples and demonstrations and using and reusing board scraps for exhibit and display mounts. Another example of reuse includes removing boxes and board covers that are in good shape from withdrawn books prior to disposal. These materials are brought back to the preservation lab to be reused on future books.

The preservation department has also found success in donating unusable materials to other university departments and community organizations. Last year the preservation department donated scrap materials (Davey board, book cloth, airplane cloth, etc.) that were too small to be useful in the preservation lab to a letterpress class in the MU Art Department. The art students then used these materials to create hand-bound books for their final project. Not only was this collaboration successful in limiting the disposal of scrap materials, but it also created a closer relationship between the library and the art department. The two groups have continued to collaborate on various projects.

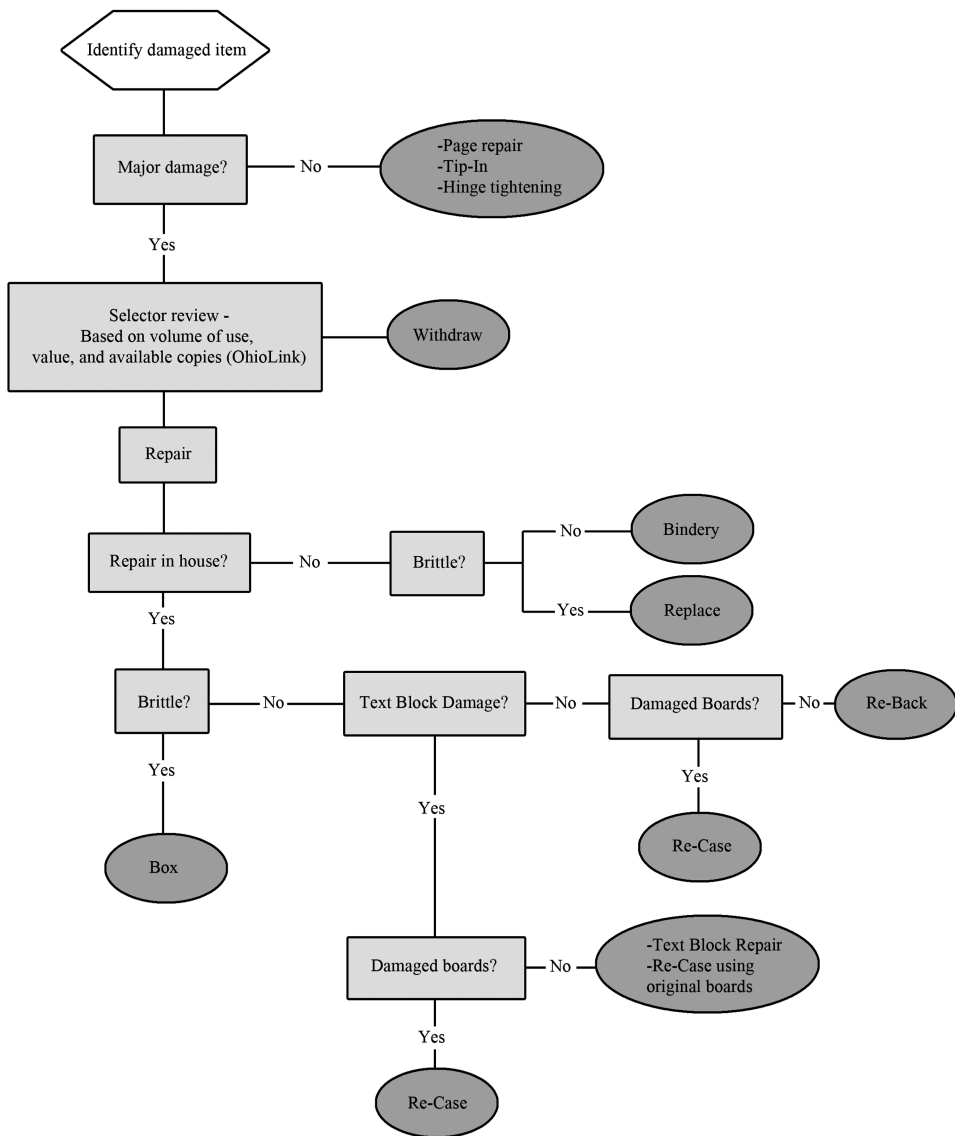


FIGURE 1. Treatment decision tree for general collections materials.

Another example of a collaborative effort involves the library's special collections department and its need for exhibit supports. Over the years, the preservation department has been asked to create custom exhibit supports and backdrops for special collection's displays and exhibits. We have worked hard to create modular pieces that can be re-configured and reused for subsequent exhibits, thereby reducing both the materials and time spent constructing brand-new supports for each specific exhibit.

Recycling as a Last-Ditch Effort

When all else fails and material must be disposed of, finding ways to recycle is a much better option than relegating them to a landfill. When setting up our recycling program, we worked with the university's physical facilities department as well as the local waste-management facility to determine what can and cannot be recycled. We also placed recycling receptacles in highly visible areas and educated staff and student workers about what should and should not go into these receptacles.

Some of the materials we work with in the preservation lab can be tricky—not everything can be thrown into the local recycling bin. When determining what should be recycled and what should be thrown away, we found the AIC sustainable practices wiki to be quite helpful. The wiki was created as a resource “for AIC members and other caretakers of cultural heritage regarding environmentally sustainable approaches to preventive care and other aspects of conservation practice” and includes a wealth of information on studio and lab practices; material selection and disposal; solvent use; facility wide considerations; and publications, projects, and presentations (AIC Committee on Sustainable Conservation Practice, 2013). Once the preservation department created general recycling guidelines, we consulted with local facilities as well as various vendors on the more difficult materials, such as acrylic-coated barrier board, acrylic sheeting, hardback books/covers, and book cloth. While not all of these materials can be recycled everywhere, it is always worth exploring available options.

Greener Options When Purchasing Supplies

Reducing the amount of waste created in a preservation lab is only one part of the equation. Looking at our waste production and disposal led us to the next logical step—the purchasing of supplies and materials. We explored both the manufacturing process and content, as well as post-consumer options such as recyclability and other disposal limitations when considering supply options. While there are increasing options available—for instance Gaylord Archival Supplies sells a line of eco-friendly library supplies and furniture—it has still been difficult to find eco-friendly archival supplies specific to preservation practices.

Reconciling Preservation and Sustainability

The scarcity of sustainable preservation/conservation supplies raises several questions: if greener options are not available, does that mean there isn't a need or market for them? And how do we go about creating a market for these materials?

Preservation best practices can further complicate matters. The supplies and materials often used in preservation programs and treatments have most likely undergone various testing and perhaps, certification, in order to vet them as appropriate for use in preservation and other archival practices. When greener supply options become available, will they hold up to the rigorous standards set by best practices?

Preservation is actually viewed by many as a sustainable practice. By focusing on the task of ensuring materials are around for as long as they are needed, preservation staff is inadvertently saving the time and resources needed to replace those items. It is much more sustainable to care for items you already possess, thereby extending their useful life cycle, than it is to constantly have to replace materials rendered unusable by haphazard care and management. However, there are also several ideologies of preservation that can be seen as directly conflicting with sustainable practices. One such conflict is that of the proper preservation environment, discussed by both Staniforth (2010) and Linden et al. (2012). While the exact environmental conditions are not always agreed upon, it is often recommended that materials be kept in an environment with a stable temperature no higher than 70°F, and with a stable relative humidity between a minimum of 30% and a maximum of 50% (Ogden, 1999). Depending on the time of year and location, it can be quite energy intensive to maintain these standard conditions, even if the goal is merely creating a stable environment over the ideal one. When discussing this issue, Staniforth (2010) draws upon Thomson's (1978) book, *The Museum Environment*, in which he states:

There is something inelegant in the mass of energy-consuming machinery needed at present to maintain constant RH and illuminance, something inappropriate in an expense which is beyond most of the world's museums. Thus the trend must be towards simplicity, reliability, and cheapness. (p. 267)

Another preservation philosophy that has the potential to conflict with sustainable practices is the method of "lots of copies keep stuff safe" or LOCKSS. Relying on multiple copies for preservation purposes is the basis of both the traditional system for paper-based materials, as well as the practice of creating and maintaining one or more back-up copies of digital materials (including the LOCKSS program for journal titles). While the lots-of-copies method is perfectly suited to preserving library materials, the resources of space, time, and energy to maintain such systems can be less than ideal.

Further complicating matters is the field of digital preservation. Often conversations on the sustainability of digital preservation are framed from an economic standpoint because digital preservation can be, and often is, expensive. It takes time and resources to implement an effective digital preservation program, which also directly correlates to the environmental impact of the field. While society has not yet agreed upon whether paper

books or ebooks are better—or conversely, worse—for the environment, we have agreed that electronic information is not as unobtrusive as it may seem. Electronic files must be stored and accessed somehow, and these systems can take up large amounts of resources in the form of energy and space, which is to say nothing of the raw materials needed to create the servers, computers, and mobile devices used in conjunction with electronic information. The preservation of digital materials often involves multiple back-up copies of files, and a sometimes complex system of activities pertaining to file condition, authenticity, format, and accessibility.

CONCLUSIONS

It is obvious that libraries have enthusiastically taken up the charge of sustainability, both in the profession and in the communities we serve. In order to achieve the goals we have set, it is crucial that all aspects of a library system be considered when creating sustainable practices; integrating preservation into those practices can be challenging. While many tried and tested approaches to sustainability can be easily adapted for use in a preservation program, how do we address the unique challenges that sustainable preservation presents? We must address challenges such as the balance between energy consumption for climate control and the need for proper preservation environments; the desire for greener purchasing options versus the need for vetted and tested archival supplies; and the effectiveness of LOCKSS versus the resources required to keep such systems in place.

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