

ForumJournal

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Preserving America's Industrial Heritage



ForumJournal

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NATIONAL TRUST FOR HISTORIC PRESERVATION

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ON THE COVER: The Venable Tobacco Company complex, a former tobacco processing plant in Durham, N.C., has been rehabilitated to provide office, lab, retail, and restaurant space. The National Trust Community Investment Corporation made a \$6 million investment in the \$17.8 million historic rehab of this 90,000-square-foot National Register property.

PHOTO BY KRIS STANLEY

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Some 30 stakeholders interested in industrial heritage gathered at the Pocantico Conference Center in Tarrytown, N.Y., last November to examine the latest ideas associated with industrial heritage preservation, re-use, and interpretation and to chart future directions for saving and revitalizing the nation's industrial heritage. Participants included industrial archeologists, preservationists, architects, writers, and leaders from a range of nonprofit and governmental agencies.

PHOTO BY PEPPER WATKINS

Introduction

A MESSAGE FROM THE J.M. KAPLAN FUND,
CO-SPONSOR OF INDUSTRIAL HERITAGE RETOOLED

This issue of Forum Journal provides an opportunity to examine how the preservation movement addresses America's industrial heritage. The authors were participants at Industrial Heritage Retooled, a three-day symposium held in November 2010 at the Pocantico Conference Center in Tarrytown, N.Y. The event was co-sponsored by The J.M. Kaplan Fund, the National Trust for Historic Preservation, and the Rockefeller Brothers Fund.

Industrial Heritage Retooled set out to explore the present and future of our American industrial heritage. The diverse resources of this heritage—be they grain elevators, mining head frames, or textile mills—embody the expansion of our country and its development as an economic and agricultural powerhouse. Yet many of these sites—in cities, towns, and rural landscapes—are threatened by disuse and neglect.

We preservation professionals must ask ourselves some tough questions. Are industrial sites properly surveyed and inventoried? How do we contend with sites that are sometimes big, unattractive, and contaminated? Do we apply the same preservation tools to these resources as we would for a Greek Revival mansion, a religious property, or a historic theater? Does the treatment of industrial heritage warrant a separate approach or is it part of the mainstream preservation movement?

These were some of the questions that prompted The J.M. Kaplan Fund to initiate this conference. We were curious to investigate where industrial heritage fits within the broader US preservation movement. The Kaplan Fund has a long history supporting innovative preservation initiatives. In 1970 we provided seed money for the conversion of Bell Laboratories to Westbeth Artists Housing on the

Westside of New York City, one of the first examples in the US where an industrial building was adaptively used for artistic and residential purposes. In the 1980s we helped initiate the first Sacred Sites Program of its kind in the country, and in this decade have helped save “Prairie Churches” of the Great Plains and Art Deco buildings of Havana.

The *Retooled* symposium provided a forum to examine the latest ideas associated with industrial heritage preservation, reuse, and interpretation. The gathering made evident the wide variety of dedicated individuals, organizations, and municipalities saving and reusing industrial resources, and the range of their accomplishments.

We hope this issue of *Forum Journal* will illustrate the challenges of preserving our industrial heritage and provide a framework for next steps. *Retooled* was a launching pad for new ideas that will be developed over the next year. The Kaplan Fund is proud to have the National Trust's involvement, which will include a special focus on industrial heritage at the October 2011 National Preservation Conference in Buffalo.

I hope that you find this issue thought provoking, and that it will lead to preserving more of our industrial heritage.

PETER W. DAVIDSON is chairman of The J.M. Kaplan Fund.

Addressing the People and Places of Historical Industrial Landscapes

NEIL COSSONS

ne of the great conservation conundrums of the 21st century is: How do we handle the future of once-thriving industrial regions? In the old world of Europe and in North America the great age of industry has come and gone. It is now history. That is not, of course, to say that heavy industry and manufacturing have ceased to be vital parts of these economies—on the contrary—nor that new and innovative technologies are not key to their futures. But if we look at the transformational changes that took agrarian societies into industrial and urban prosperity, then that great age of industry is now the past. How we handle the detritus of this past—from the scars of dereliction to some of the world's most outstanding built heritage—is one of our greatest challenges.

IF THE RISE OF INDUSTRIALIZATION was dramatic in its scale and impact, we now realize that this was nothing compared with the effects of de-industrialization.

What in Britain came to be called the Industrial Revolution, with its early stirrings in the mid-18th century, spread rapidly across northern Europe and the United States. And, of course, it is still spreading. Over a period of less than half a century from the late 1850s, Japan took itself from secluded isolation on to the world stage. The means of achieving that was industrialization. Today Brazil,

India, and China are pursuing similar trajectories. As new nations industrialize so older ones contemplate their position in the changing world order. Where does their future lie? And what do they do with their past?

In Germany's Ruhr Valley or the cotton towns of Lancashire in northern England, across the Rust Belt of Michigan, in great seaports like Liverpool or the mining districts of South Wales or West Virginia, communities are having to face a future in which the conditions that brought them three and sometimes four generations of work and prosperity have evaporated.

Looking back at the phenomenal rise of industrialization we see the effects of extraordinary social and economic change. In late 18th- and early 19th-century England mass migrations from

the countryside to the new industrial towns heralded, on the one hand, the creation of vast new wealth, on the

other hand, appalling living conditions and urban squalor. New cities like Manchester—the world's first industrial city—were seen then as wonders of the world, bustling with prosperity and civic pride from the proceeds of their great textile mills. They also became places of pilgrimage for those who wanted to emulate what was being achieved. And, of course, it was a contrasting picture of Manches-



Ditherington Flax Mill in Shrewsbury, England (1796–97), which was the world's first iron-framed building, has stood empty for more than 30 years. Too precious to lose but too fragile to readily adapt, it is currently the subject of an English Heritage research and conservation initiative.

PHOTO BY NEIL COSSONS

ter's industrial pre-eminence, of what they saw as the degrading proletarianization of working people, that led Friedrich Engels and Karl Marx toward their manifestos for a communist future.

But if the rise of industrialization was dramatic in its scale and impact, we now realize that this was nothing compared with the effects of de-industrialization. The social, economic, and environmental impact of the loss of industry, and the heritage issues that it raises, pose intractable questions for communities and governments. Are the industrial years something we wish to put behind us in favor of a more comfortable picture of the past? And if so, what happens to the people and places that are left behind? Or can we capture in the material evidence of post-industrial communities sufficient substance to reconcile our desire for a tangible link with the past with aspirations for an economically and socially vibrant future? This is heritage at its most testing. It is not for the faint-hearted.

Societies have confronted these dilemmas in a variety of ways. Some have tried to forget and even obliterate what was left. In the 1950s, as mines closed in the coal fields of northeast England, Durham County Council (the local government), started a program of identifying pit villages that could be wiped off the map, the infamous "Category D" villages. No new development would be permitted and, as buildings became empty, they would be systematically demolished. In 1951, 114 settlements were listed as Category D—an unfortunate initial interpreted variously as "derelict," "doomed," or "dying." By 1964 the list had grown to 121 but by 1970 only three had been entirely eradicated. The scheme was formally abandoned in 1977. Durham pitmen and their families, even when the jobs had gone, were a tough breed; shifting them was no easy matter.

But there is a lesson here. When the plant closes or the seam has run out, there are still people living in these communities. And there are low incomes, high levels

of deprivation, and rarely the resources, certainly within local neighborhoods themselves, to find solutions to the social and environmental consequences of de-industrialization, let alone realize opportunities for heritage-led conservation. Outside intervention is almost always required.

REGENERATION IN THE RUHR

A prime example has been Emscher Park, the regeneration of the vast brownfield landscape of the Ruhr Valley in northwest Germany, once the heartland of Europe's coal and steel industries. Here a top-down and carefully integrated development plan—backed with huge funds from the state government of North Rhine–Westphalia, the German federal government, European Union, and private sector—has enabled more than 300 square miles of industrial dereliction to be rehabilitated within a carefully defined framework of ecological principles. Within this macro-structure, individual sites were then targeted for redevelopment and local private and public initiatives encouraged.

Removal of the polluted remnants of mine tailings (the refuse that remains after ore is processed), coke ovens, and gas and

chemical plants has been followed by landscaping to create linear green spaces interspersed with development areas in which old industrial housing has been renovated and new residential property built. Four fundamental elements characterize Emscher's approach:

- Reuse of brownfield land as a means of redressing dereliction and preventing exploitation of previously undeveloped “greenfields”;
- Extending the life of existing buildings that can be saved in preference to building new;
- Using ecologically sound building practices for new build and for adaptive use;
- Transforming the region's production and employment structure toward environmentally friendly methods.

As Emscher's visionary planner, Karl Ganser, states, “Even the best-planned new buildings are no match against the preservation, modernization, conversion, and reuse of existing buildings when it comes down to the consumption of resources.” And reuse makes sense in terms of infrastructure costs since these sites are usually well served by roads and sewers.

One of the striking aspects of Emscher Park is the profusion of mammoth steel plants, gasholders, and mine headframes. These have, where possible, been retained, often as monuments in the landscape. The great gasholder in Oberhausen is now a cultural center for conventions, theater, and concerts while the celebrated Zollverein pithead frame in Essen, designed in 1928 by

By far the most prolific evidence of past industrial communities is workers' housing. The residents of this neighborhood of terrace housing in Nelson, in Lancaster, argued that their homes were in sound condition and successfully fought proposals for demolition.

PHOTO COURTESY OF ENGLISH HERITAGE.



Fritz Schupp and Martin Kremer, forms the heart of a cultural complex that is now a World Heritage property. In 2010 Emscher Park was designated *European Capital of Culture*.

The role of a public sector driver as a means of mitigating environmental and social dislocation, and thus creating opportunity for private sector investment, has been a thread that runs through much of the heritage- and culturally-led industrial regeneration schemes across Europe.

REINVENTION IN LIVERPOOL

In Liverpool too this has been the pattern. Liverpool is a city whose rise was meteoric. At the height of its Edwardian preeminence, just a century ago, it proclaimed itself—with ample justification—the “second city of empire.” As the outlet for the products of industrial Britain, as the point of import for the harvests of empire, and as the port of departure for those seeking a new life in a new world, Liverpool’s role was beyond all comparison. Of the 5.5 million Europeans who fled poverty, prejudice, and pogroms between 1860 and 1910, 4.75 million—more than 85 percent—left through the port of Liverpool.

The city’s wealth is reflected in some of the finest buildings and the most spectacular cityscape in Britain. Outside London, Liverpool has more buildings listed (legislatively protected) for their architectural and historical importance than any other city.

By 1930 Liverpool’s population topped 800,000. Today it is little over half that, the city a victim of the changing economic fortunes and new technologies that have afflicted many old seaports throughout the world. The decline has

been calamitous. Per capita GDP is less than 75 percent of the European Union average and Liverpool tops the deprivation index of cities in Britain. Dereliction and decay are widespread. Riots in 1981 focused the UK government’s eyes on the city and public money flowed in; the tide is beginning to turn and the transformation has been spectacular. But private sector investment, now beginning to pick up, has been slow in coming.

Here we see in sharp focus the heritage conservation issues of urban societies as they cycle from growth through decline to some sort of new future; renaissance or bust? Urban regeneration based on the reuse of inherently sound and stunningly impressive industrial and commercial buildings is one strand of the way forward. For the first time in nearly a century, population in central Liverpool is actually rising as young professionals and the affluent retired seek stylish apartments in rehabbed warehouses close to the waterfront and the cultural, entertainment, and retail opportunities of the downtown area.

THE ROLE OF A PUBLIC sector driver as a means of mitigating environmental and social dislocation... runs through much of the heritage- and culturally-led industrial regeneration schemes across Europe.

For some this new service-based economy has eroded Liverpool’s distinctive character, commodifying and demeaning an environment built for one purpose by making it a stage set for a new form of urban living. It may be pretty but it’s no longer gritty. An alternative view might question what other options are available, and stress that the benefits of regeneration through conservation attract inward investment and help expand and diversify the city’s still-frail economy. Another and more cynical view,



reflecting Liverpool's phlegmatic indifference to any news, good or bad, might have as its mantra: "We've seen it all before. There have been any number of revivals and none of them has led to lasting benefit." Long gone are the Beatles, Liverpool's most famous export of recent years, and those days in the 1960s when the American beat poet Alan Ginsberg saw Liverpool as "the center of the consciousness of the human universe." Unrecorded are the rejoinders from hard-bitten locals who then, as now, see themselves as guardians of all that was special and much that was perverse in Liverpool's character. This might be decoded as: "If part of the purpose of urban rehab is to reinforce the personality of place, do formulaic answers achieve that goal?"

WATERFRONTS

But what Liverpool reflects is a wider global pattern in which dramatic but decaying waterfronts have become hot property, attractive for their mix of eminently reusable industrial buildings and waterside settings. The roots of this movement can be found in the United States in the 1960s, with celebrated examples in economically buoyant cities such as San Francisco and Boston. The conversion

In the 1970s, Liverpool was at the depths of its declining fortunes. Twenty years later, its Albert Dock Warehouses were successfully rehabbed for retail and residential uses and to house the Merseyside Maritime Museum and Tate North.

PHOTO BY NEIL COSSONS

between 1964 and 1968 of the Ghirardelli Chocolate factory into shops, restaurants, galleries, cinemas, and offices at a cost of some \$12 million, followed by the conversion of nearby ice houses into offices and showrooms, is widely credited with starting the trend for waterfront rehabilitation of industrial buildings. It set a style that has evolved on similar lines worldwide. With the success of the Inner Harbor in Baltimore—not itself a heritage-led project—retail, residential, and leisure-based waterfront schemes now abound in, for example, St. Katharine Dock, London; Darling Harbour, Sydney; Victoria & Alfred, Cape Town; and Granville Island, Vancouver.

Some have been predicated on the attraction of historic ships but rarely has this offered a financially viable format, not the least because the profits of shore-based enterprises usually fail to trickle down to the maintenance of the vessels themselves. Historic ships, initially seen as signature attractions of new waterfront schemes, can soon look careworn due to inadequate upkeep. New York's South Street Seaport, with its important historic ships, illustrates the dilemma. So too does the battle to save the four-masted ship *Falls of Clyde*, one of Honolulu's important historic landmarks. The inherent value of historic ships derives from their history; they require meticulous preservation as important artifacts. Adaptive use is rarely for them.

SINGULAR AND WHOLE PLACES OF INTRINSIC VALUE

The world's post-industrial landscapes are littered with outstanding structures that

have an intrinsic value, in terms of their history and archeology. This transcends any usefulness that adapting them for new purposes might afford, even supposing that to be possible. Here we need to preserve for history's sake.

The origins of the industrial age, the first great global empire, stand with the feats of ancient Egypt, Athens, or Rome. Capturing these industrial landscapes and their futures for posterity is increasingly seen as an obligation by nations proud of their industrial roots and keen to retain symbols of a distinguished past.

The world's first iron bridge, built across the River Severn in England in 1779, is one of the symbols of Britain's emergence as the first industrial nation. It was designated as an ancient monument in 1934. Nearby, in Shrewsbury, is the world's first iron-framed building, a flax mill dating from 1796. Listed a Grade 1 historic building, it is too important to lose, too fragile for economic reuse—and without question Britain's most outstanding Georgian building at risk—yet its future has yet to be resolved.

In France some 40 square miles of the Nord-Pas de Calais offers an outstanding diversity of coal mining remains: five

generations of winding engines, about 200 waste tips, transport systems, and numerous areas of miners' housing. All this illustrates the impact of a 300-year

THE WORLD'S POST-INDUSTRIAL landscapes are littered with outstanding structures that have an intrinsic value, in terms of their history and archeology.

industry on a huge area, reflecting its vivid industrial culture and traditions. Mining ended in 1990, but since 2000 the advocacy group Mission Bassin Minier has been promoting the candidacy of the coal field for World Heritage status. This is currently under consideration by UNESCO.

Similarly, in Kyushu and Yamaguchi, the evidence of the extraordinary transition, from the end of the Tokugawa era through the period of the Meiji restoration, that built the foundation for Japan's industrial revolution forms the basis for an outstanding World Heritage nomination embracing the coal, iron, and steel and shipbuilding industries. Here is first-hand material evidence of the birth of a modern nation.

The industrial landscape is a misunderstood heritage—at worst, urban rustbelt, dangerous, a toxic wilderness; at best, a resource to be reused, regenerating communities, offering real richness and opportunity, reinforcing cultural identity and creating new commercial prospects. But it can also be a vivid reminder of how today's world came to be the way it is, when industry employed



One sees desolation writ large at Gunkanjima ("Battleship Island") in Kyushu, Japan. Once home to a coal mine and more than 5,000 people, Gunkanjima was evacuated in the 1970s and has been decaying ever since. The purest way to treat such abandoned places may be to leave them be.

PHOTO BY NEIL COSSONS

whole communities and provided the heartbeat for many towns and cities. In this respect these historic industrial landscapes deserve our closest attention.

Today industrial culture is no longer central to people's lives; ensuring that its past matters to new generations poses new dilemmas. The narrow economic arguments—tourism and cultural renaissance, adaptive use and expanded retail opportunities—are challenged by the sheer scale of Liverpool's or Detroit's predicament. And yet the fate and future of these places is of interest to us all because as world cities they belong to us all. In a global society this is an even more persuasive argument than we might at first imagine. We have an opportunity to recalibrate our view of the past and the values we place on its heritage by acknowledging the democracy of the meanings and metaphors that attach to it. These are whole places and they deserve to be treated as such.

That means ditching some of our heritage predilections and comfortable traditions; moving away from focusing on individual sites, structures, and buildings to instead see landscapes in the round as places to be re-ordered for people and as places where an understanding of the past can liberate a resource for the future. The new urbanism, a growing recognition that human habitats and the web of history afford creative synergies, the innovative philosophies of new-generation architect planners—all are responses to the challenge of reviving the fortunes of superseded places, what for many is a daunting prospect.

RUINS

And then of course there are the empty places, as melancholy as the deserted medieval villages of middle England. They stand marooned in time. Perhaps we

should leave them there. In decay theirs is a quality of innocent authenticity unspoiled by tourism, unsanitized by conservators, untainted by voyeurism.

Our romance with the past began only some two and a half centuries ago. It venerated ruins. Ruins have become sanctified as places of pilgrimage. The Parthenon or Machu Picchu serve no purpose other than as ruins. But their power and meaning is in their capacity to speak to us. Through them we can converse directly with the past. So, in our desire for tidiness let us look to our industrial ruins as assets-in-waiting that will mature over time. Leave them alone. The Japanese have a word for it—*haikyo*: veneration of the ruins of the past.

Offshore of Nagasaki is an abandoned coal mining island, Gunkanjima. Beyond all possibility of conservation in the conventional sense, corrosion and decomposition are its most overpowering characteristics. Here a future as a ruin in unmanaged and continuous decay is both practical and perhaps the most ethically pure way forward. Intervention would destroy the majesty of disintegration. This is the antithesis of adaptive use.

The future of these working places is in our hands; to preserve for posterity, to recycle for tomorrow, or to leave alone so that future generations can make choices for themselves based on our prudence and their values and judgments. FJ

SIR NEIL COSSONS was from 2000 to 2007 chairman of English Heritage, the United Kingdom government's principal adviser on the historic environment of England. English Heritage is responsible for the designation of historic properties for protection, opens 414 historic places to 5.2 million visitors a year, and has a membership of 758,000. Cossons has spent his life in museums and historic conservation, specializing in futures for industrial sites and landscapes. He is currently provost and chairman of the Council of the Royal College of Art.

Preserving Industrial Heritage: Challenges, Options, and Priorities

DUNCAN HAY

First the good news: There have been quite a few notable successes in the preservation of America's industrial heritage.

Now the rest: We're still losing important sites and structures, most of the successful projects preserve only shells or fragments, and there's a fair amount that we're either missing entirely or haven't figured out how to deal with.

Over the past 40 years, scores of mills, factories, and warehouses have been maintained and restored, many reused as residences, offices, stores, restaurants, entertainment venues, and community centers. Repurposed industrial buildings have often helped anchor revitalization of surrounding communities. This is all to the good, but before we celebrate collective success we need to recognize that preserving industrial heritage usually requires more than saving

and finding new uses for old buildings. In many of the most successful projects, developers and preservationists cleared out the guts in order to save the skin. That, by itself, is no sin. We simply need to recognize that the reuse of industrial properties, like many preservation projects, requires compromises and tradeoffs.

DEFINING INDUSTRIAL HERITAGE

All sorts of things get lumped into the broad category of "industrial heritage."

Practitioners joke that it's a catchall phrase for properties that people couldn't easily categorize. If a structure's function is not clearly agricultural, residential, commercial, or municipal, it is often labeled industrial. The category includes large-scale facilities such as paper and textile mills, auto assembly plants, iron and steel manufacturing complexes, machine building works, chemical and sugar refineries, and breweries as well as small-scale grist and sawmills, wood and metal working shops, and garment factories. Steam and hydroelectric power plants, water and sewage pumping stations, rail shops, shipyards, and mines are often thrown into the mix along with bridges, dams, canals, warehouses, grain elevators, and other elements of

WE NEED TO RECOGNIZE that preserving industrial heritage usually requires more than saving and finding new uses for old buildings.

industrial infrastructure. There is also a growing appreciation that worker housing, much of it company built, and commercial and civic districts of mining and manufacturing communities are closely related elements of industrial heritage that are worthy of recognition, study, and preservation.

Industrial structures are central to a sense of place. They are often the most prominent features on the landscape, visible to all who enter the community and

unavoidable once you're there. Even when they're gone, lost to fire or demolition, you can sense the void that they once occupied. Many towns, for instance, were built around and in response to the factory.

SOME POSITIVE ATTRIBUTES

Physical preservation of some industrial buildings is comparatively easy. Textile mills, machine shops, gun factories, and similar industrial loft buildings were solidly built of durable materials. They have large floor areas, tall ceilings, regular column spacing, and large window openings (although the sash may have been removed and the openings blocked up). Casting sheds, steel mill buildings, and automobile plants have so much open interior volume

that they can be fitted with multi-level buildings-within-buildings. Heavy-duty electrical service, harbor and rail access, and water systems often remain in place. Although these elements of infrastructure may be too deteriorated to use outright, their rights-of way and grandfathered permits can be extremely valuable.

Many factories were built next to the rivers and streams that once supplied power, water for industrial processes and fire protection, and a place for waste disposal. These waterways are now scenic amenities. Almost all mills are, or were, surrounded by housing within reasonable walking distance and most have at least vestiges of retail space in the immediate neighborhood.



Preserving industrial sites for educational purposes involves more than just saving and presenting the buildings and structures. To fully understand the activities of these places, one should experience the heat and humidity, the noise, the smells. How much of this could visitors take? Shown here: Ford Motor Company River Rouge Steelworks, in Dearborn, Mich.

PHOTO BY DUNCAN HAY

BUT MANY CHALLENGES

With all their advantages, historic industrial properties still pose some special preservation challenges:

Scale

Industrial buildings can be very big. Preserving large industrial complexes is a bigger task than rehabilitating a house, a neighborhood, a commercial building, or even a business district. Textile mills are often five or six stories high with several thousand square feet per floor. They've got acres of roof and hundreds of windows. Those windows may be very large, but they're mounted in buildings that are so wide that direct sunlight rarely reaches the center of the floor. Door openings, aisles, and ceiling heights were established to allow easy circulation of product and equipment—they are often far larger than necessary for more ordinary human uses.

Excess size was rarely an issue while plants were in operation. Underutilization usually becomes a subject of preservation concern only *after* the factories have closed. By that time, the buildings have often suffered deferred maintenance and possibly some insensitive alterations by owners struggling to keep their business afloat rather than being shipped south or overseas.

Inflexibility

Although textile mills, machine shops, and other loft-style factories can be fairly easy to adapt to new industrial and non-industrial functions, many facilities are large, purpose-built, multi-element machines designed specifically for the efficient production of a particular product. The walls, roof, and windows were simply a skin, put

there to hold the machinery in place and keep the weather out. Extreme examples include mine head-frames and ore mills, blast furnace and steel mill complexes, grain elevators, chemical refineries, and postwar steam power plants. Picturesque grist and sawmills pose similar problems on a far smaller scale. Most contain masses of interconnected machinery with very little open floor space. These buildings' structural systems were designed to hold the equipment in place. Sheathing was applied almost as an afterthought. It can be a real challenge finding alternative uses for these machine-buildings—a factor that contributed to their abandonment by manufacturers.

Nasty Stuff

History isn't always pretty. Neither was manufacturing. In addition to the structures, archives, and artifacts that we museum types cherish, manufacturers all too often left behind byproducts and industrial waste that can delay, and sometimes blow the budget of, preservation efforts.

Economics

Those acres of roof need to be patched with depressing frequency and replaced every 20 or 30 years; the windows need to be scraped, puttied, and painted; drains and downspouts need to be kept clear; and that's all just to keep the place from falling down. If you plan to actually *do* anything with the building (like putting people in it) you're probably going to want things like heat, light, ventilation, and some interior modifications; and you're going to have to get any nasty stuff taken away before you start.

There may simply be too much space. New users often want only a portion



Closed mills in Lawrence, Mass., remain as bitter reminders of the collapse of its once-thriving textile industry. This negative view was expressed on the wall of a warehouse that was formerly a boardinghouse for female workers at the Washington Mills.

PHOTO BY DUNCAN HAY

(usually the lower floors) of a factory complex and are not interested in paying for maintenance of upper floors, let alone ancillary buildings that remain contributing elements to the mill yard. The problem is compounded in districts where there are many underutilized factory buildings to choose from.

Real estate tax policies don't always favor preservation or stewardship. During the Depression, mill owners in Lowell, Mass., tore the roofs off of some of their buildings and left the walls standing in order to lower their tax assessments. If vacant lots are taxed at a substantially lower rate than ones with empty buildings and there is little prospect of income from new uses or tenants, there is an incentive to clear the site.¹

Attitudes

Understandably, many residents may be bitter about the loss of their community's industrial base. Government officials are dealing with lower tax revenue from less-valuable real estate and from the reduced earning and spending of former

plant workers, combined with increased burdens on public services, some of which were previously provided by the company. A sense of abandonment and the sting of lost jobs and income can be very fresh. Reduced worker income leads directly to diminished sales at local businesses and changed shopping patterns as workers go elsewhere to find employment. Disappointment can turn into bitter resentment—vandalism, arson, and sometimes a desire to clear the site and start over. The factory closing may be too recent and feelings too raw. Sometimes a generation has to pass before the bitterness subsides.

PRESERVATION OPTIONS

There are several techniques for preserving and maintaining historic industrial facilities—continued or alternate industrial use, adaptation to non-industrial functions (adaptive use), curation, documentation, and preservation of fragments as monuments. None of these strategies is perfect so it is important to have informed discussions about what is being saved and what is being sacrificed.

Continued or Alternate Industrial Use

Continued industrial use has many advantages. Big open spaces that were built for one industry may be perfectly suitable for other sorts of manufacturing and assembly operations or warehousing. It will not and cannot be static preservation. New industrial occupants will want to modify the building. Odds are that the truck dock is almost inaccessible to modern rigs, the freight elevator is too small and of limited capacity, stairs don't meet code, passenger elevators are nonexistent, and human accommodations from restrooms to heat are close to primitive.

The challenge is to balance preservation goals and a host of other regulatory elements with the manufacturer's need to turn a profit without undue hassle. The risk of playing the preservation suit too hard is having the manufacturer pull up stakes and move to a metal or tilt-slab building alongside the interstate, leaving behind a big industrial building that defines the core of a community but is now vacant.²

Preservation Through Reuse

Although people who work for the preservation of industrial properties often think of themselves as the poor stepchildren of the larger preservation movement, many signature projects of the past 40 years have involved restoration of mills, factories, and power plants, usually with new functions. Walter C. Kidney's *Working Places: The Adaptive Use of Industrial Buildings*, published in 1976, included 40 case studies.³ Several stand today as icons, not just for industrial preservation but for preservation generally—Ghirardelli Chocolate factory and a nearby Del Monte cannery in San Francisco converted into a destination marketplace of restaurants and high-end retailers; Utah Light &

Railway Company's trolley barns in Salt Lake City converted into retail and entertainment space; Pittsburgh's Pittsburgh and Lake Erie Railroad station converted into a hotel and office complex and anchor for an entertainment district; Boston's Chickerling Piano Factory converted into artists' studios and residences; a Bell Telephone Laboratory in Manhattan converted into the Westbeth artists' housing; remains of Washington Gas Company's coal gasification plant preserved as industrial sculpture in Gasworks Park on the north shore of Lake Union in Seattle.

The surge in "adaptive use"—which became a buzz phrase of the 1970s and '80s—was largely triggered by the Tax Reform Act of 1976 that provided tax credits for "substantial" renovation of National Register-eligible properties, coupled with the building boom of the 1980s.

Reuse of former factory and warehouse buildings for residences, offices, retail space, and brew pubs is now so commonplace that it would be challenging to compile a nationwide catalog. Such projects have preserved landmark buildings that define the communities where they stand; helped stabilize and bring people and money into once-declining neighborhoods; increased municipal tax receipts; and are reported to have improved the outlooks of neighboring businesses and residents.

Charlestown Navy Yard, as an example, is a massive two-decade adaptive use project administered by the Boston Redevelopment Authority (BRA). I used to have an office in the Navy Yard and enjoyed it very much, despite the nagging question: "Just what has been preserved here?" The buildings are handsome, although there are a lot fewer of them than there were when the yard closed. The landscaping is more elaborate and better

tended than even the most obsessive commandant could have imagined. Yet it's a very different place, transformed from the domain of ship fitters, welders, riggers, and hammer men to an enclave of medical research labs and apartments for folks who can afford rents of several thousand dollars per month.

So what's missing? In too many cases, industry has been scrubbed clean out of these industrial sites. True, most apartment and condo complexes in former mill buildings have large sepia-toned photos of workers hanging in their lobbies along with reproductions of Sanborn and Factory Mutual fire insurance maps. Many have boiler doors, big valves or switches salvaged from another part of the building, and maybe an example of a machine once used in the plant or a product that was produced there mounted on the wall or tucked in the corner of a common room as relics of the buildings' working past. A water turbine runner, headgate hoist, or segment of a steam engine fly-wheel may mark a corner of the parking lot. This may sound flippant, but we've all seen it—hardware as decoration.

SO WHAT'S MISSING? In too many cases, industry has been scrubbed clean out of these industrial sites.

That's the conundrum with adaptive use. It requires alteration of the places that we want to save, sometimes to the point that important parts of their character are lost and we are left wondering whether we've actually saved anything of significance and whether it was worth the effort.

Curation

Museum curators often operate at the opposite extreme. For many years, museums acquired signature pieces of

technology and exhibited them in galleries on pedestals, much as an art museum displays sculpture. Growing interest in the social context for technology and in the interactions between workers, machines, managers, products, and consumers led many curators to try collecting, or at least documenting, as much as they could of the workplace environment that surrounded the machines. Sometimes, after shooting dozens of photographs, museums carted away every machine, hand-tool, pattern, bench, stool, and shelf, along with samples of materials and work-in-process. This obsessive collecting was impelled by certainty that whatever we didn't take today would be in a dumpster or under a pile of rubble tomorrow. Industrial history curators often compare themselves to buzzards, circling around dying manufacturers, waiting to pick at the carcass before auctioneers, scrap dealers, and other more muscular scavengers pick the bones clean.

When installing exhibits in historic spaces, an act akin to putting Humpty-Dumpty back together again, the goal is usually to make a workspace look as if the employees had just stepped out

for lunch. It is a conceit borrowed from historic house museums. His-

toric furnishings extend beyond tables and chairs (or in this case, lathes and benches) to fabrics, place settings, and lighting devices (or woodchips, tool chests, and lanterns). It also involves a bit of stagecraft—the work piece on the bench, apron on a hook, and pin-up under the lid of the tool-box, all placed to suggest that the room's historical occupants would be back any moment.

At Michigan's Henry Ford Museum and Greenfield Village, curator John

Bowditch extended set-dressing beyond the walls of the Armington and Sims Machine Shop by installing a period-appropriate junk pile in the yard.

Although a good scrap pile is an essential source of parts for any working machine shop, museum management and the grounds crew were not pleased with this degree of veracity.⁴

Of course, even that attention to detail falls short of the real thing. Production spaces that aren't producing anything can be cold and quiet

indeed. Sure, we can send someone 'round to fire-up the line-shafts and

belts and turn a few machines on when visitors are about. The Boott Mill weave room at Lowell National Historical Park does as good a simulation as any. Shafts and belts turn, loom harnesses go up and down, beaters go back and forth, and shuttles clatter between picker-sticks. Most visitors don't notice that looms behind the front row are moving, but not making anything. The warps on those machines are dummied-in.

However, to get a real sense of the textile industry you need to spend time in a working mill and experience first hand the heat and humidity pumped in to keep fibers pliable, the noise, the smells of fiber, warp dressing, and machine oil. The Lowell simulation cannot reproduce the full experience.

Questions that industrial museums face include: How badly can we treat our visitors? How do we dispose of the product (especially if it's substandard)? How do we deal with employee health and welfare and environmental issues that may have stymied commercial operators before us? Try as we might, curators and exhibit

planners can only simulate a fragment of industrial experience. Does that matter? Does anyone else care?

Preservation through Documentation

It's useful to know how an industrial facility looked and functioned, especially when it faces demolition or substantial alterations to accommodate continued use or reuse. Many of the protocols for documenting industrial sites have been

PRESERVING large industrial complexes is a bigger task than rehabilitating a house, a neighborhood, a commercial building, or even a business district.

developed by the Historic American Engineering Record (HAER), a program of the National Park Service (NPS), and by its older sibling the Historic American Buildings Survey (HABS). HABS was established in 1933 to document historic structures through measured drawings and large-format photographs, and, initially, to provide work for unemployed architects during the Great Depression. During its first three decades, HABS teams documented a number of grist mills, tide mills, wind mills, and other vernacular industrial structures. It also organized the first New England Textile Mill Survey.

But by the late 1960s a number of people argued that industrial properties and engineering structures deserved special attention and required different recording techniques than conventional buildings. They proposed creation of a new organization, modeled after HABS. The Historic American Engineering Record was established in 1969 under a three-way partnership between the NPS, Library of Congress, and American Society of Civil Engineers.

Setting Priorities: The Case Of Bethlehem Steel and Others

In order to let some sites go with a clear conscience, we must establish priorities regarding what to save. In the case of America's 20th-century iron and steel industry, we're not doing very well. Several authors have traced the sad succession of losses over the past two decades at Youngstown, Lackawanna, Pittsburgh, Johnstown, and most recently Bethlehem—steel-making towns that once defined American industrialism.¹

There were several proposals to redevelop Bethlehem Steel's main works after the company shut it down in 1995. Despite some goofy schemes from a Florida theme park developer, most proposals made some effort to address preservation of the five tall blast furnaces and their hot blast stoves that line the south bank of the Lehigh River, along with many of the buildings and massive sheds that filled the site. Nothing came of the ambitious plans, or the whacky ones.

In 2006 Pennsylvania identified the site as the candidate for a casino development. Las Vegas Sands Corporation won the bid to develop the casino, started clearing the site in April 2007, and opened for business in May 2009.² Sands left about 20 buildings, including the five blast furnaces and the 1,500-foot-long No. 2 Machine Shop. People who had long advocated preservation of the Bethlehem site's industrial heritage expressed ambivalence about the casino but most saw at least partial success in maintaining the line of stacks along the river that had been defining elements to city's sense of place for more than a century. Anxieties returned in March 2010 when the Sands Corporation reported disappointing earnings from the Bethlehem Casino and rumors began to circulate that they were looking for a buyer.³

The irony is that dozens of 19th-century stone blast furnaces survive across America but so far, with the future of the Bethlehem site still in question, only one steel-bodied 20th-century furnace is assured any measure of preservation. When it was in operation, Sloss Furnace in Birmingham, Ala., was a small producer of merchant-iron for local foundries; a reasonable example of a 20th-century iron smelting operation, but nothing special and certainly not nationally significant. Now it is far more important, simply because it is a rare survivor.

1 Thomas E. Leary and Elizabeth C. Sholes, "Fragments Shored Against the Ruins: Industrial Archeology and Heritage Preservation," *IA: The Journal of the Society for Industrial Archeology*, 26: 1 (2000), pp. 95-102; Edward K. Muler, "Food for Thought: Industrial Preservation's Legacy," *Pennsylvania Legacies*, 6:2 (November 2006).

2 Terry Pristin, "Slot Machines May Ring Where Steel Was Once Forged," *New York Times*, January 10, 2007; Steve Friess, "A Casino Rises in the Place of a Fallen Steel Giant," *NYT*, May 23, 2009.

3 "Sands Says Pennsylvania Casino Isn't on the Block," *NYT*, March 2, 2010.

HAER's first decade produced a remarkable amount of inventory work—in Oklahoma, California, Delaware, South Dakota, Colorado, Georgia, Michigan, Rhode Island, Lower Merrimack Valley (Mass.), Cuyahoga County (Ohio), Trenton (N.J.), Western New York, Connecticut, Indiana, and Kansas. It also saw thematic inventories of stationary steam engines and bridges. The idea was to first inventory and evaluate all historic industrial and engineering resources in an area or of a class, then use that universe as a basis for selecting the best or most representative examples to be recorded.

Documentation as preservation seemed like a fairly pragmatic attitude at a time when there didn't appear to be many options or public sympathy for the preservation of the physical remains of former industrial facilities. Unfortunately, in some circles documentation has come to be seen as a substitute for preservation rather than a complementary activity.

On one hand, we have “doc-and-destroy” mitigation projects where photos and drawings are all that are left of a facility.⁵ On the other hand, we see factory complexes cleaned-up and rehabilitated for new uses with no documentation and all evidence of former industrial activity swept away.

Saving Fragments

So we see that factory buildings can be converted to new uses, especially if they are fortunate enough to be standing where there is some demand for interesting real estate. And a handful of industrial sites may become museums, although society's ability to support new nonprofit organizations seems decidedly limited. But what

about the rest? What about the non-buildings—blast furnaces, refineries, coke ovens, head-frames, and other specialized structures that are prominent on the landscape but are abandoned, require expensive repairs and ongoing maintenance, and cannot be adapted to purposes other than supporting cell phone towers and holiday lights? In many other cases, preserving a substantial fragment as a marker on the landscape may be the best we can achieve. Keeping a few touchstones will be derided by those who hoped for better, but to my eyes it's better than losing all trace of productive activity.

A WHOLE-PLACE APPROACH

Industrial heritage is far more than factories alone. Physical manifestations of industrial society can be seen in surrounding workers' housing, community structures, infrastructure, and landscapes.

UNFORTUNATELY, in some circles documentation has come to be seen as a substitute for preservation rather than a complementary activity.

In some parts of the country, clusters of related and supporting industries with associated housing and communities agglomerate into industrial districts or regions that stretch for miles. Moving beyond individual structures to recognize, interpret, and protect these larger landscapes of industry has characterized the work of the past three decades.

From the outset, the National Register of Historic Places (NR) recognized historic districts and thematic groups. Quite a few NR district nominations and a handful of National Historic Landmark (NHL) districts include manufacturing facilities and their associated workers' housing and community structures.

In the 1970s, a number of people proposed heritage areas and urban cultural parks as a new mechanism for recognizing, protecting, and promoting historic resources over a larger area. Massachusetts established heritage state parks in the industrial cities of Lowell, Holyoke, Gardiner, Fall River, and North Adams. New York created urban cultural parks (UCPs), later renamed state heritage areas. The first of these, the Hudson-Mohawk UCP, included five municipalities in three counties at the confluence of two rivers that had been industrial centers through all of the 19th and much of the 20th centuries.

Lowell, Mass., may be the best known and best funded example of community-wide preservation of industrial resources. The textile industry started moving out of Lowell in 1921, initiating a half cen-

tury of economic hardship, bitterness, and feelings of abandonment. In the 1970s, a handful of Lowell residents started working to change attitudes and focus attention on characteristics that had once made the city a model for American industrial development. Congress established the Lowell National Historical Park and the federally funded Lowell Historic Preservation Commission in 1978.

During the early 1980s, when the Massachusetts economy was booming, the Preservation Commission developed designs and funded rehabilitation of mills and worker housing, facades along downtown commercial streets, and locks and other structures on the canal system.

The commission also built an esplanade along the Merrimack River, past



Massachusetts Mills, in Lowell, Mass., was demolished to open views to the Pawtucket Canal. The remainder of the complex was converted into apartments.

PHOTO BY DUNCAN HAY

the back sides of Lowell's surviving textile mills. Historically, this section of the river was walled-off from the city by a solid mile of mills. Demolition and arson opened up a number of new access points and a concrete sewer interceptor provided the foundation for this new urban amenity.

Somewhere along the line, planners' passion for "reconnecting" Lowell to its waterways seemed to take on a life all its own. They opened views to the Pawtucket Canal that had been closed since the 1840s by

demolishing buildings that lined both sides of the Central Street Bridge. The buildings were no architectural loss and the newly created vistas and canal-side walkways are nice additions to the cityscape, but demolition and selective restoration created a city form that never existed, until now. That's not necessarily bad, but we need to recognize that history, heritage, historic preservation, and good urban design are not always synonymous.

Congress established the first National Heritage Area, the Illinois and Michigan Canal National Heritage Corridor in 1984 and the Blackstone River Valley NHC two years later. Legislation for at least half of today's 49 National Heritage Areas explicitly recognizes industrial heritage and resources. In addition to protection and interpretation responsibilities stated in most heritage area legislation, an unstated goal for many is improving their region's self-esteem and attitude toward old industrial buildings.

GOING FURTHER: BETTER AND EARLIER INTERVENTION

At their core, preservation laws, regulations, and guidelines focus on real

estate and buildings. Section 106 of the National Historic Preservation Act says that "Agencies shall take into account the effect of their actions on buildings, structures, sites, and objects listed in or eligible for listing in the National Register of Historic Places." That doesn't say a thing about process. It doesn't say a thing about workers or residents of industrial communities. It doesn't say a thing about

WE NEED TO RECOGNIZE that history, heritage, historic preservation, and good urban design are not always synonymous.

documenting or mitigating the loss of skill, or social organization, or work routines, or even the mundane work spaces where those things took place. The preservation community doesn't do that. Some folks in the museum business do, or at least try to. Historic preservation as it's defined in this country is much more concrete and it's defined in architectural terms. Its regulatory power, such as it is, is based on control over property. We need to be aware of that and recognize that mitigation alone isn't enough.

A related problem is that all too often by the time we're called in to mitigate the demolition or alteration of a historic industrial building, the activity inside has already ceased. Again, this goes beyond the scope of mitigation, which is after all, an attempt to *mitigate* the effects of a federal action. We need to anticipate rather than just mitigate. We also have to recognize that many of the things that "affect" historic industrial and engineering facilities have nothing to do with federal action.

It would be good to have the opportunity to study historic plants while they're still in operation, before their loss has to

be mitigated. HAER has done some of this work: at West Virginia's Seneca Glass and Elkins Coke in the mid 1970s, and Stockham Valve and ACIPCO (American Cast Iron Pipe Company) in Birmingham, Ala., during the '90s. Curators at a number of museums, including the Smithsonian's National Museum of American History, have documented workplaces, workers, and processes, mainly in conjunction with collecting trips.

All of this falls outside the scope of mitigation and documentation as it is defined by federal law and policy. We may all agree that we *should* be making a more richly textured record of the nation's industrial heritage. When that gets done, however, (if it gets done at all) it usually happens as a guerrilla action by folks who have devised means of stretching the legal definition of what must be done.

A MATTER OF PRIORITIES

One has to ask: "With all of this attention and all of these success stories over more than 35 years, why are we still talking about this stuff? Isn't it safe to assume that industrial properties will be treated with the same affection and care as historic houses and business districts?" We could all wish that were true, but we continue to lose mills and factories to demolition, arson, and neglect.

The preservation movement is now of sufficient age that folks can look back and analyze its successes and failures not simply in terms of structures saved or lost, but also in terms of the meanings and consequences of those victories and losses. Typically, the discussion is framed: "Preservation of what? For whom? To what end?"

When I start fuming about industrial sites that have been sanitized as part of rehabilitation or large machine parks

reduced to industrial sculpture, I try to remember:

- Not every factory can remain in production—we in preservation have little effect on that.
- Not every disused factory can be preserved—concentrate on the important ones.
- Maintained buildings are better than neglected ones—especially when they're big and in the center of the community.
- America's not ready to support too many more museums.
- It's important to maintain a sense of the site's industrial past—preferably without relegating machinery to the status of lobby or parking lot decoration.
- Clutter is part of history too.
- Some things are iconic features on the landscape and deserve to be preserved—even if they have no future commercial use. **FJ**

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- 1 Randolph Langenbach, *A Future from the Past: The Case for Conservation and Reuse of Old Buildings in Industrial Communities* (Washington, D.C.: US Department of Housing and Urban Development and Massachusetts Department of Community Affairs, 1977) pp. 101-8.
- 2 Those homely structures may be the next generation's preservation challenge. Matthew Roth, "IA and the 20th Century City: Who Will Love the Alameda Corridor?" *IA: The Journal of the Society for Industrial Archeology*, 26: 1, (2000) pp. 71-84.
- 3 Pittsburgh: The Society for Industrial Archeology and Ober Park Associates, Inc., 1976. Most of Kidney's examples were finished projects although there were a few works-in-process and proposals.
- 4 *Risks and Rewards: Perspectives on Operating Mechanical Artifacts* (Wilmington: Hagley Museum & Library, 1992).
- 5 Section 106 of the National Historic Preservation Act of 1966 only requires mitigation and other preservation attention for properties that are listed or eligible for listing in the National Register of Historic Places. Therefore, we can assume that the subjects of mitigatory documentation were significant and once possessed integrity.

Action Steps for Preserving Industrial Heritage

Industrial heritage sites have not attracted a great deal of attention from national groups or state-level preservation organization, for many reasons. The sites tend to be big, dirty, and complex, with potentially nightmarish maintenance costs and the specter of toxic residues or other hidden dangers. The sites can be hard to understand: What is it that makes them important? How did they work? How might they be returned to productive use? They are beyond the scope of traditional preservation training and traditional interests in domestic and/or public structures, and often don't attract a ready constituency of supporters. Sometimes when the factory closes and the jobs go away, these sites become the focus of negative emotions, not positive ones. Overcoming these factors can be a daunting task, but it is a worthwhile effort that should be encouraged.

What can/should organizations do to foster preservation of industrial heritage in their communities and constituencies?

Educate! First and foremost there is a need to increase awareness of the resources that exist, raise concern about threats to these resources, and help inform the public of values retained in these sites, structures, and landscapes. In these days when fewer and fewer Americans (and Westerners in general) are involved in manufacturing or industrial production, fewer people appreciate the role that this kind of labor and productivity served in creating the world we now inhabit. Education and publication programs to inform the public, emphasizing the role of industry in American history, are essential to encourage an appreciation of the sites and landscapes of industry that surround us, and that are disappearing daily.



More than 1,000,000 square feet of long-vacant industrial structures in the historic American Tobacco complex in Durham were renovated using federal and state tax credits. The project has transformed downtown Durham, resulting in new (often high-tech) jobs, restaurants, shops and residences. Most important, the project has changed the image—and the self-image—of a historically blue-collar town.

PHOTO COURTESY OF HISTORIC AMERICAN TOBACCO CAMPUS

Study! National and state organizations should support more survey and inventory work, to proactively identify and evaluate resources that deserve preservation attention. By the time these resources are identified in the Section 106 review process, or slated for demolition in brownfield redevelopment schemes, it is often too late to advocate for preservation alternatives. It may also be too late to produce meaningful and convincing evaluations, especially because there is so little comparative information to help gauge a site's relative value and quality. Thematic and/or regional studies that create inventories and generate priority lists of the best examples are needed to help guide decision makers.

Engage! Working with groups such as the Society for Industrial Archeology, we can increase active involvement in industrial heritage preservation and tourism. Industrial heritage sites often hold intrinsic interest to people who are curious about how things are made, how things work, and what went on in the remote recesses of once off-limits industrial facilities. Increasing legitimate access can promote wider interest in and concern for these places. The National Trust's "This Place Matters" campaign has helped citizens recognize town centers, buildings, and landscapes that are important to them, even if they aren't fully able to articulate why. Perhaps we should build on that program to raise awareness that in many communities—"This Workplace Matters."



Education programs, such as the tours and demonstrations that take place at the restored Schroeder Saddletree Factory Museum in Madison, Ind., can help inform the public about the role of industry in American history. The Saddletree Factory, which dates from 1878, crafted thousands of wooden frames for saddle makers in the United States and Latin America. The factory, which closed in 1972, is now operated as a museum by Historic Madison, Inc., and is open to the public.

PHOTO COURTESY OF HISTORIC MADISON, INC.

Industrial Heritage Preservation Organizations and Institutions

PATRICK MARTIN

The rise of industrialization has triggered arguably the most profound set of social and environmental changes in human history. More influential perhaps than the invention of agriculture or even of written language, the countless changes brought about by the mass production and consumption of goods transported over vast distances, and by innovations in technologies such as the control of water power and large-scale metal production, have shaped our modern world in fundamental ways. Both social and environmental conditions—from the rise of cities and nation states to massive modifications of the landscape—are attributable to the forces of industrialization. The heritage of these profound processes exists around us, often largely unnoticed, sometimes despised and discarded (as seen in recent attempts to reclaim brownfields). But increasingly there is a rising recognition of the potential value of these heritage resources, and an appreciation of what they might teach us, and future generations, about the past and about how we came to inhabit the world that we have made.

The recognition and preservation of industrial heritage in North America has a fairly long, if somewhat obscure, history with a varied record of accomplishment.

Notable actors in this process include many individuals, but it is useful to recognize some organizations and institutions that have played a role, and that may be critical going forward into the future.

UNITED STATES ORGANIZATIONS **Society for Industrial Archeology**

Probably the most important organization focused on industrial heritage in the US is the Society for Industrial Archeology (SIA). Founded in 1971, this membership organization was created “to encourage the study, interpretation, and preservation of historically significant industrial sites, structures, artifacts and technology.” Inspired by the example of a similar group in the United Kingdom, the Association for Industrial Archaeology, the founders

BOTH SOCIAL AND ENVIRONMENTAL conditions—from the rise of cities and nation states to massive modifications of the landscape—are attributable to the forces of industrialization.

included museum curators; government preservation officials; practitioners such as architects, engineers, and planners; historians and academics; and avocational enthusiasts. The society’s use of the term “archeology” is based on its principal concern with the physical evidence of industrialization, not necessarily limited to the use of the traditional archeological techniques of research. This terminology has been both a blessing and a curse. It

widens the scope and appeal of the enterprise beyond a focus on buildings and/or history, but it confuses some who respond to the term “archeology” in its most narrow connotations, referring to the tools of excavation and/or an emphasis on antiquity. Increasingly in North America, the term “industrial heritage” is used to refer to this area of interest and activism, consistent with practice in much of the remainder of the world.

IN THE UNITED STATES, no industrial heritage sites have been [inscribed on the World Heritage List]; this is a matter of serious concern.

Throughout its history, the SIA has combined a scholarly approach to the study and understanding of industrial heritage with an activist, preservationist ethic. As an organization that includes significant membership from both professional and avocational ranks, this dual focus is a major defining characteristic. SIA publishes a peer-reviewed journal, *IA*, along with a quarterly *SIA Newsletter*, and a website rich with information (www.sia-web.org). Members also interact through social media sites. SIA holds two meetings per year in shifting locations, featuring a mix of scholarly presentations and highly popular tours of historic industrial facilities and also of production and infrastructure

sites still in active use. SIA runs occasional international study tours as well, to showcase exemplars of preservation practice and remarkable site survivals in other countries.

In addition, SIA embraces several affiliated local and regional SIA chapters, such as the Roebling Chapter of the New York and New Jersey region, the Klepetko Chapter centered in Butte, Mont., the Oliver Evans Chapter in Philadelphia, and the Samuel Knight Chapter in the Bay

Area of California, among others. These chapters, mostly named after important historical figures

in industry and technology, undertake local and regional activities as well as preservation advocacy. They hold seminars, conduct tours, publish newsletters and websites, and participate in campaigns to recognize the value of industrial heritage resources in their communities.

Among the founders of the SIA, perhaps the most important for seeing it become a reality was Robert M. Vogel of the Smithsonian Institution’s National Museum of History and Technology. One of a group dominated by museum curators and researchers who had been working around the edges of the topic for years, Vogel provided the centering influence to help see the SIA organized. He served as its newsletter editor from early days (if not the beginning), and managed the society from his offices in the Smithsonian. While Vogel



The world’s first iron bridge (1779) is the centerpiece of Ironbridge Gorge, a World Heritage site recognized as the birthplace of the Industrial Revolution in England. The Ironbridge Gorge Museum complex includes industrial buildings and sites as well as a re-created Victorian town, all providing lively interpretation about the industrial roots of England and, by extension, the world.

PHOTO BY NEIL COSSONS

has since relinquished the publishing and headquarters tasks after his retirement, he remains very much the founding spirit of the society.

The Historic American Engineering Record

Vogel's connections with another emerging organization in the late 1960s portended important developments for industrial archeology and industrial heritage. Vogel's program at the museum had undertaken surveys of New England textile mills in 1967 and 1968, and then in 1969 partnered with the newly created Historic American Engineering Record (HAER) to conduct a landmark survey of the industrial archeology of the Mohawk and Hudson River Valleys in the vicinity of Troy, N.Y. This pilot project set the standard for what has become a more than four-decades-long program of documentation within this National Park Service branch.

Employing and training scores of young professionals over the years, HAER has generated a massive archive of expert drawings, photographs, and prose descriptions of an amazing array of industrial installations, artifacts, and infrastructure. From the start, HAER has partnered with the Library of Congress, where the products of HAER's work have been archived and made accessible—most recently online through the Built in America Collection (memory.loc.gov/ammem/collections/habs_haer), along with the products of sister organization the Historic American Buildings Survey (HABS). Not only are the HAER products important in their own right, but the agency's work has served to raise public awareness and appreciation for these resources through exhibitions, publications, and the mere presence of HAER researchers in communities throughout the

country. Furthermore, HAER has literally set the standards for quality documentation—standards that are required benchmarks for documentation practice and quality adopted by state historic preservation officers and others across the nation, and that are pointed out as exemplars by practitioners around the globe.

INTERNATIONAL INDUSTRIAL HERITAGE SITES

While industrial heritage practices in the US offer some marvelous examples that set high standards for documentation and preservation, we must look abroad for many of the most imaginative and effective industrial heritage practices. Our colleagues in Europe, in particular, have been innovating in a different political and social environment for decades, and their successes offer fine models to inform and enlighten us. We will explore only a few of these here.

First and foremost is the Ironbridge Gorge Museum complex in Shropshire, England. Home to *the* Iron Bridge and styled “the Birthplace of Industry,” this remarkable collection of structures and artifacts lies within a landscape that delights the public as it educates them about early industry. It was here that coal, in the form of coke, was first used to smelt iron ore, presaging a shift that made cast iron both cheap and plentiful. The Iron Bridge, erected in 1779, was the first structure of its kind built of cast iron, and the handsome structure survives to this day, standing as the icon for industrial heritage in the UK. The other local museums and sites that make up the complex include a clay pipe works; the Jackfield Tile Museum; the Coalport China Museum; the Blists Hill Victorian Town, complete with a massive working steam engine and a steam



Engelsberg Ironworks, a World Heritage site in Sweden, preserves more than 50 buildings from a historic ironworking estate and associated farm. It is the most complete surviving example of a type of operation that was common in Sweden during the 17th through 19th centuries.

PHOTO BY PATRICK MARTIN, MICHIGAN TECHNOLOGICAL UNIVERSITY

railway; the Museum of the Gorge, located in a Gothic style warehouse; and the Coalbrookdale Museum of Iron, located at the site of the iron furnace where coke-fired smelting was first developed. These sites make up an attractive cluster offering lively interpretations within a living landscape, providing to visitors an engaging educational experience to help them appreciate the industrial roots of the nation and, by extension, the Western world.

The significance of the Ironbridge Gorge is recognized by its inclusion on UNESCO's World Heritage List since 1986, a listing that further symbolizes the central role that the UK played in the Industrial Revolution of the modern era. This listing has been followed by several others in the UK, a result of a concerted effort on the part of industrial heritage professionals in that country. Among the subsequent listings are the Blaenavon Industrial Landscape in Wales, added in 2000; Cornwall and West Devon Mining Landscape, in 2006; and the Derwent Valley Mills, New Lanark, and Saltaire,

all listed in 2001. In each instance the technological elements are central and key to the designation, but all also are situated within a context that includes rich social and natural landscape features that help to define and explain the essential values that support the World Heritage listing.

Two other important industrial heritage sites honored by inclusion on the World Heritage List are found in Sweden. The first, Engelsberg Ironworks, listed in 1993, is a remarkable complex of buildings and facilities from an ironworking estate active from the 17th through the 19th centuries. More than 50 buildings remain, including a water-powered blast furnace, forges for wrought iron production, and administrative and residential buildings for both managers and workers that sit within the context of the working farm that supported the population.

The second particularly notable site in Sweden is the Mining Area of the Great Copper Mountain in Falun, listed in 2001. As a central feature of a mining landscape operated since the 13th century, the site includes a large number of architectural remains that illustrate the development of the planned 17th-century town of Falun and the massive copper mining complex that supported it.

Another particularly significant industrial heritage development in Europe is the European Route of Industrial Heritage (ERIH). Modeled initially on an earlier scheme called the Route of Industrial Heritage of the Ruhr, in the industrial heartland of western Germany, this tourism network links more than 850 sites in 32 countries. The Ruhr project, opened in 1999, demonstrated that a network of industrial monuments and landscapes could succeed in celebrating and preserving key elements of the industrial heritage of a

region by developing high-quality interpretive presentations linked into a rationalized and cooperative system of connected sites.

The expansion of this approach into ERIH, first to five additional countries and then to all of Europe, was supported by European Union funding, with coordination based in the Ruhr where it began. This massive undertaking links sites along thematic routes, such as the Route of Iron and Steel, and regional routes, such as the Ruhrgebiet Regional Route. Key sites are designated “Anchor Points” and the whole enterprise is marketed via a strong web presence (<http://en.erih.net>). Linkage of sites into a network serves to expand the reach of the marketing, but also assures a quality standard for research and interpretation, as well as generating a brand and easily identifiable image to help travelers find sites of interest wherever they may travel within Europe.

INTERNATIONAL ORGANIZATIONS

The International Committee for the Conservation of the Industrial Heritage

The primary organization that links professionals, practitioners, and students of industrial heritage on the international level is The International Committee for the Conservation of the Industrial Heritage (TICCIH). Begun in 1973 at Ironbridge, this group works to galvanize attention for and gather and share information about industrial heritage at the global level. With triennial General Congresses and intermediate meetings typically focused on thematic and/or regional topics, TICCIH has attracted hundreds of members worldwide. The organization generates an attractive and informative quarterly *Bulletin*, now available in electronic format, and is affiliated with a periodic journal called *Industrial Patrimony: Resources, Practices,*

Cultures. TICCIH maintains a strong web presence, offering a variety of resources such as publications, news, networking connections, directory of members, links, and policy documents at <http://ticcih.org>.

In addition to the networking and information functions, TICCIH is an active advocate for preservation and understanding of industrial heritage resources, intervening and offering expert advice on behalf of its members and others who face risks from development and other forces of change. Further, TICCIH has a formal agreement with the International Council on Monuments and Sites (ICOMOS) to serve as the expert body to provide guidance to ICOMOS on matters related to industrial heritage.

More about ICOMOS and the World Heritage List

The International Council on Monuments and Sites (ICOMOS) is an international nongovernmental organization created by a resolution of the United Nations Educational, Scientific and Cultural Organization in 1964 “to coordinate international effort for the preservation and the appreciation of the world heritage of historic monuments.” With 9,500 members drawn primarily from the professional conservation community, organized through a system of National Committees and Scientific Committees, ICOMOS is a major force in heritage preservation, providing training opportunities, maintaining a documentation center, organizing expert missions to aid heritage preservation efforts around the world, and circulating news and information. Furthermore, ICOMOS is named in the 1972 UNESCO World Heritage Convention as one of the advisory bodies to the World Heritage Committee, the group that maintains the World Heritage List of the most important cultural and natural sites.

In recent years, working with TICCIH, ICOMOS has explicitly recognized a need to expand attention to industrial heritage resources. As a result, more than 20 industrial heritage sites and landscapes are now inscribed on the World Heritage List, an honor that serves as a powerful signal about the importance of these resources, based on the single criterion of “outstanding universal value.” Several of the sites mentioned above—Ironbridge Gorge, Engelsberg Ironworks, and others—enjoy World Heritage status. In the United States, no industrial heritage sites have been listed; this is a matter of serious concern.

ACADEMIC PROGRAMS

Background

Industrial heritage preservation has not enjoyed a central place in the preservation movement within the US up until now, nor has it been prominent in higher education programs. Significant numbers of the interested parties and practitioners come from such disciplines as engineering, history of technology, and architecture, many of them operating on an avocational basis. For years, there was no active university home for this specialization, neither in Europe nor North America. In the UK as early as the 1960s there were specialty

connected to their schools of archeology. In the US, Rensselaer Polytechnic Institute created the first graduate degree program in Industrial Archeology in the 1980s.

Michigan Technological University

This writer’s home institution, Michigan Technological University, created a Master of Science in Industrial Archaeology in 1993, and added a Ph.D. in Industrial Heritage and Archaeology in 2005 (For more information see Bruce E. Seely and Patrick E. Martin, “A Doctoral Program in Industrial Heritage and Archaeology at Michigan Tech,” in *CRM: The Journal of Heritage Stewardship*, Volume 3, Number 1, crmjournal.cr.nps.gov/Print.cfm?articleIDN=2582.) Over the last two decades the program has graduated more than 50 master’s degree holders and the first two students to earn a Ph.D. explicitly focused on industrial heritage. These new professionals have gone on to positions in the heritage industry, doing assessments for government agencies, interpretive plans for museums and historic sites, and performing as curators in museums; several also hold university positions.

The unique interdisciplinary blend of history, historic preservation,

anthropology, architecture, and material culture studies provides a rich perspective

AT THE MOMENT Michigan Tech is the only institution in North America offering degrees in Industrial Heritage and Archaeology.

courses in industrial archeology taught in adult continuing education programs, but no regular university courses until the 1980s. The first of these were in Bath and Birmingham, the latter associated with Ironbridge. More recently fully fledged graduate and undergraduate programs have emerged at Leicester and Manchester,

generally not matched in any of the traditional disciplinary-based programs offered elsewhere. Sited in the former Michigan Mining School, in the midst of a 19th-century copper and iron mining district on Lake Superior, the program is surrounded by a natural laboratory of industrialization (and de-industri-



Michigan Tech students get hands-on experience documenting industrial sites in the US and abroad. The West Point Foundry in New York, a major producer of cannons in the 19th century (whose headquarters building is shown here), has been a subject of ongoing student research.

PHOTO BY PATRICK MARTIN, MICHIGAN TECHNOLOGICAL UNIVERSITY

alization!). The region is littered with the physical and social remnants of a boom-and-bust mining district of global importance, with the attendant archival resources and community dynamics.

But the students and faculty are by no means limited to the study of the local region. Diverse sponsors and clients have sought our services and insights to examine sites ranging from the sugar plantations of the Caribbean islands of Nevis, St. Croix, and Puerto Rico, to the Arctic coal mines of Svalbard and the gold mines of Alaska. Our students have documented desert mining districts in Death Valley, iron mining sites in Minnesota, and mills and smelters in Kentucky, Michigan, and Tennessee. A recent long-term project has focused on the West Point Foundry, a globally significant iron foundry of the 19th century in the Hudson River Valley north of Manhattan, which was a major producer of large iron products with a specialty in cannon manufacture. Students experience real-world preservation problems while learning the research skills that will allow them to produce high-caliber interpretive data for future generations.

EXPANDING EDUCATIONAL OPTIONS TO ADVANCE THE FIELD

At the moment Michigan Tech is the only institution in North America offering degrees in Industrial Heritage and Archaeology. It is currently negotiating agreements with some international institutions to share students and faculty and confer joint degrees. This collaborative approach offers significant advantages by broadening the perspective and experience of the students.

While the roots of the Industrial Revolution are found in the Old World, it was in the New World, and particularly in the US, that it played out in perhaps its richest and most elaborate form during the 19th and 20th centuries. A collaborative look should help us to understand this process and its results. And it should help us to better appreciate and understand the continuing advance of the industrial world into the non-Western regions that it increasingly occupies. **FJ**

PATRICK MARTIN is professor of archaeology and chairman of the Department of Social Sciences at Michigan Technological University. He currently also serves as president of The International Committee for the Conservation of the Industrial Heritage.

Greater Pittsburgh's Industrial Communities in Transition

AUGUST R. CARLINO

December 25, 1985. I was driving up East Carson Street in Pittsburgh's South Side neighborhood on my way to my grandmother's home, a route I had taken for all of my 25 years. Although my grandmother had passed away in 1970, her home was still in the family, and was the traditional gathering place at Christmas for my mother and her eight brothers and sisters along with their children, grandchildren, and great-grandchildren.

Such traditions run deep in Pittsburgh's ethnic communities, rooted in the customs and practices of immigrant populations that settled the region more than 100 years ago. They came in waves to work the mines and the mills. Scots-Irish and Germans came first, followed by Eastern and Southern Europeans in the early 1900s. As I drove up East Carson Street that evening, more than 100 years after the arrival of those early immigrants, not much had changed.

unnerving feeling that I could not immediately place. The lights from across the Monongahela River were bright; I could see the holiday lights from the homes on Oakland's hillside. I remarked to my passenger—my future wife, who was not a native of Pittsburgh, but had been on this trek with me several times before—that something was different.

"They tore down the mill," she said, an outsider immediately noting the change.

It hit me in the gut harder than anything had ever hit me before. The massive Jones & Laughlin Mill was gone. I was seeing something I had never seen from East Carson Street in my life: the river and the opposite shore. For my entire life, that steel mill, "J&L" as Pittsburghers called it, dominated the South Side. It was the workplace for tens of thousands of men and women, spanning generations. Its tall blackened brick walls and steel buildings lined the main street, rarely affording a view inside from the street. If you didn't

IT HIT ME IN THE GUT harder than anything had ever hit me before. The massive Jones & Laughlin Mill was gone.

I had moved away from Pittsburgh a few years earlier and was working in Washington, D.C. I had often made the return trip to Pittsburgh to visit family, comforted by the familiarity of place each homecoming entailed. However, as I focused out the driver's side of the car that night, I had an

work there, you could never gain admittance, but through an infrequently opened gate you might have caught a glimpse of fire, smoke, and large, menacing machinery. The bright glow of fire from the mill lighting up the evening sky was a comforting presence that was taken for granted. Never, ever, could anyone walking or driving on East Carson Street see across

the river, for the mill blocked this view all along its three-mile length.

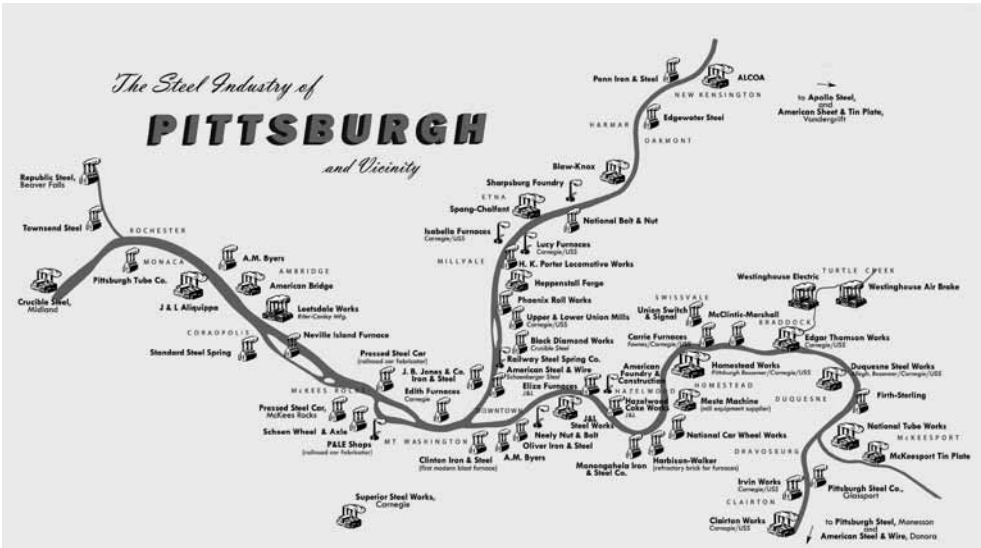
I could not, at first, see what was so evident. The mill. It was gone.

THE LOSS OF A WAY OF LIFE

At the height of the steel industry in southwestern Pennsylvania, the riverfronts along the Monongahela, Allegheny, and Ohio rivers were lined with steel mills, coal mines, coking plants, machine shops, and foundries. Other large-scale industries along the rivers produced other products demanded by a growing nation, including glass and aluminum. These were all accessed by a vast transportation system of railroads and river boats. In all, more than 150 miles of riverfront were home to some form of industry. The center of this massive conglomeration was the major steel mills along the Monongahela River, just outside of the city of Pittsburgh. These mills in Home-

stead, Braddock, Duquesne, McKeesport, and Clairton were the heart of U.S. Steel's empire dating back to Andrew Carnegie and the Carnegie Steel Company.

The 1970s and 1980s brought a significant change to the region. The economy of steel-making had shifted to different parts of the world. Factories closed, and unlike previous closings and layoffs, these were widespread and permanent. No longer was Pittsburgh and the Mon Valley the Steel-making Capital of the World. As the mills closed down, tens of thousands lost their jobs. The ripple effect spread through the communities as businesses closed, homes were lost to foreclosure, and people with no hope of reemployment—or of any employment for that matter—began to move away. Stable communities, where homes and jobs were passed on from generation to generation, were caught up in the ensuing chaos.



Steel mills, coal mines, coking plants, machine shops, and foundries lined the banks of the Monongahela, Allegheny, and Ohio Rivers during the height of the steel industry in southwestern Pennsylvania.

COURTESY OF RIVERS OF STEEL



For many, the demolition of a mill meant the loss of a way of life and source of stable employment that had sustained the community for generations.

PHOTO COURTESY OF RIVERS OF STEEL, RANDOLPH HARRIS COLLECTION

When a mill closed, mourning and bitterness were common, but more prevalent was the strong sense of denial that the mill was indeed gone. Where a closed mill stood awaiting its fate, there was often a sense of optimism, despite the demolition of other mills. The belief was a desperate hope that as long as the mill stood, it would someday reopen. The evidence was ignored. Very few people could see past the mills.

When the factories didn't reopen, plans were made for their demolition. Then when the mills began to come down, the deconstruction was as much psychological as it was physical. Tearing down a mill, a symbol of permanence that had stood for lifetimes, was shocking. It represented not only the death of the mill; it was the death of a way of life—a way of life that was the only life a vast majority of the people that lived in these communities knew. The shock and devastation was almost equal to the loss of a family member.

HOMESTEAD WORKS: TAKING A NEW APPROACH

Although efforts, no matter how futile, were made to save a mill and reopen it, preserving a mill for any purpose other than making steel was unheard of. Still, in the late 1980s, with the backing of several Pittsburgh-area foundations, plans to preserve a mill for history, not for a return to production, were explored. After considerable study, the U.S. Steel Homestead Works was identified as the most historically significant mill. But the Homestead Works was 550 acres of wall-to-wall mill buildings on both sides of the Monongahela River. Six different borough governments and the County of Allegheny all claimed part of the mill within their jurisdictions.

Still more complications arose. U.S. Steel had sold the mill to a company that demolished old industrial sites for scrap and readied them for redevelopment, without any regard for community concerns, let alone the thought of preservation. Any effort to preserve a mill or part of a mill was akin to admitting the obvious: The mills and that way of life no longer existed. The depressed mill communities were desperate for businesses to prop up their economies. Preservation would only serve to stand in the way of progress.

A plan was developed to save only the most significant parts of the Homestead Works. It was determined that the most critical sites were the remaining Carrie Blast Furnaces and their surrounding buildings on the north shore of the Monongahela River, and the Pump House and Water Tower located on the opposite shore. This latter area was renowned as the site of the Battle of Homestead in 1892, a months-long

lockout and strike culminating in a battle between striking steelworkers of the Carnegie Steel Company and Pinkerton security agents on July 6, 1892.

A local task force was formed to develop a strategy and carry out the plan. The task force later became the Steel Industry Heritage Corporation (SIHC), a nonprofit community revitalization and heritage development organization responsible for the designation and management of the Rivers of Steel National Heritage Area (NHA). This NHA covers eight counties in southwestern Pennsylvania, and includes the city of Pittsburgh and town of Homestead.

The first preservation effort by SIHC came in 1990, salvaging and preserving the 48-inch Universal Plate Rolling Mill. This mill was identified by the Smithsonian as the last operating steam-driven rolling mill in the United States. The term “48-inch” refers to a mill that rolls plates of steel up to 48 inches wide and of varying thicknesses and lengths (a size usually used for ship decking, for example).

The Homestead Works’ new owner was hastily demolishing the mill and either profiting from its scrap value or re-tooling individual mill components and selling them abroad to foreign steel companies.

The company offered the option of preserving the 48-inch mill as a gesture, almost as a challenge. With a limited time frame and a very tight budget, the dismantling, labeling, transport, and storage of the mill commenced. It took several months, with funding hurriedly secured from Pittsburgh-based foundations and with donated labor and supplies from Pittsburgh companies. The successful

completion of this project was covered widely by local media and became the impetus for all that followed.

One unexpected outcome of the mill’s preservation was the involvement of former workers of the 48-inch mill in oral histories at the mill site as it was being disassembled. Their emotional reunions, as they met at the place they had sadly walked away from many years before, provided the project with a very powerful group of allies. Soon thereafter, they formed the 48-Inch Mill Reunion Committee and began advocating for the preservation of the larger Homestead Works. Committee members attended local borough council meetings and demanded that the local government get behind the efforts to save the Homestead Works. They insisted that their 48-inch mill, now saved, must be given a final place to tell its story.

For the next several years through the mid-1990s, while negotiations with the property owner to purchase the historic portions of the Homestead Works continued, SIHC began to mobilize and organize community coalitions in Homestead and the surrounding industrial neighborhoods to join together to save their industrial heritage. While the

WITH INDUSTRIAL COMMUNITIES in transition, their cultural traditions and heritage were also in danger of extinction.

Homestead Works was viewed by many as the most significant mill, every other mill town had its own unique heritage. While not every mill could, or should, be saved, stories from the mills could be saved through oral histories. With industrial communities in transition, their cultural traditions and heritage were also in danger of extinction.

SIHC established programs with schools, communities, historical societies, and fraternal organizations to help preserve the stories, traditional activities, and folk arts and crafts of these ethnic neighborhoods. These communities embraced the strategy, recognizing that while a region's economy may change, its unique identity should not. As more communities bought into this concept, alliances were formed with other partners, including organizations that could take on particular aspects of regional and local preservation. Political factions started to take notice, and SIHC began to deliberately focus its strategy on marshalling support from politicians at the state and federal levels. In time, although the majority of the Homestead Works came down, the most critical components remained standing—although constantly under threat of demolition. Meanwhile, political and public pressure grew to preserve the mill and the region's industrial heritage.



RIVERS OF STEEL NATIONAL HERITAGE AREA

In 1996 the Rivers of Steel National Heritage Area was created by an act of Congress. That same year, the Commonwealth of Pennsylvania designated Rivers of Steel as a state heritage area within its statewide Heritage Parks Program. These two designations gave SIHC both legal and financial clout in an eight-county region of southwestern Pennsylvania. With the mandate to conserve, promote, and protect the industrial and cultural resources of the region, SIHC now had access to considerable financial backing—both political and philanthropic—to assist communities with planning and implementing preservation and cultural conservation projects.

Funding and technical assistance were secured for projects in communities located up and down the three rivers. Hiking and biking trails were built on abandoned railroad lines. Partnerships were formed with the developers of industrial riverfronts and brownfields. The backyards of industry were gradually being transformed to the new front doors of the community. Main Street organizations developed programs that were supported through grants secured with the help of SIHC. Schools were encouraged to participate through field trips, and received grants to develop curricula teaching local history. Arts, cultural traditions, and folklife programs were supported and developed with local groups to ensure the region's heritage was saved as Pittsburgh's industrial identity morphed

The designation of Rivers of Steel National Heritage Area led to increased investment in preserving and re-using industrial and cultural resources of southwestern Pennsylvania. Projects included hiking and biking trails built along abandoned railroad lines.

COURTESY OF RIVERS OF STEEL



A 1951 photo of the Homestead Works, including the Carrie Furnaces, shows the extent of the site, stretching along both sides of the Monongahela River. As such steel mills closed down in the 1970s and '80s, tens of thousands lost their jobs.

COURTESY OF RIVERS OF STEEL, JAMES RYAN COLLECTION

from the blue-collar manufacturing of the past into the high-tech medical and financial fields of the present.

Despite these successes, the focus stayed on the Homestead Works. SIHC was frustrated that the majority of the remaining historic mill buildings were being demolished, and threats were continually made to tear down Carrie Furnaces. Despite the clear benefits of preservation, most politicians shied away from intervention, fearing that any negotiations would be perceived as a public taking of the properties. In fact, public ownership of any kind was a potential nightmare. Beside the liability of ownership, who knew what environmental hazards might exist within the century-old industrial site?

MORE TURNING POINTS

Within a matter of a few years, three things happened that dramatically changed the situation.

First, Union Railroad Company donated the Rankin Hot Metal Bridge to SIHC. The donation of this abandoned railroad bridge, which spanned the Monongahela and connected the Carrie Furnaces site to the opposite side, was also a critical link in the development of the trail network that would ultimately connect Pittsburgh to the C&O Canal Towpath and Washington, D.C. What no one knew, however, was that the bridge would give SIHC a foothold, and ultimately leverage, on any future plans for Carrie Furnaces. With the acquisition of the bridge came the transfer of all



To draw attention to Pittsburgh's industrial heritage, the Steel Industry Heritage Corporation encouraged schools to take students on field trips to the mill sites and to develop curricula teaching local history. Here students from Rankin School enjoy a field trip to the Carrie Furnaces.

COURTESY OF RIVERS OF STEEL

railroad rights of egress beneath its trestles. Although SIHC did not own the land on which the bridge sat, it did now own the right to restrict any passage beneath the bridge. Suddenly, the Carrie Furnaces site had the potential to be divided in half, and with the existing road access already limited to only one end of the property, any demolition equipment to be used to tear down the furnaces, which sat opposite of the access, could only pass under the bridge. Now the property owner, who valued the Carrie site for its scrap potential, was left holding a large portion of land that no longer had value to the company, but did carry considerable liability.

Second, after reaping the scrap proceeds, the property owner had sold the south side of the Homestead Works to Continental Real Estate Development Companies of Columbus, Ohio. Continental proposed a development plan called The Waterfront, with hotels and entertainment, shopping, and residen-

tial facilities to be built within the old mill site in the communities of West Homestead, Homestead, and Munhall. Included in this sale was the transfer of the Battle of Homestead site, a critical historic site for SIHC. The sale was announced with great publicity and fanfare as the communities, so desperate for jobs and a revenue stream from the old mill, celebrated the sale. The day after the sale, Continental contacted SIHC and initiated the eventual donation of both the Battle of Homestead site and a long-term easement along the entire stretch of its property's riverfront for the eventual construction of another link in the bike trail.

The third and final part of the puzzle sat across the Monongahela River at the Carrie site. The Waterfront was being developed, and SIHC, as a community partner to Continental, was assisting with the trail construction, installation of interpretive signage throughout The

Waterfront, and stabilization and renovation of the Pump House and Water Tower at the Battle of Homestead site. The Carrie site was still owned by the company that had bought it from U.S. Steel in the 1980s. With most

of its operations moved to other industrial sites across the country, Carrie was more

abandoned than it ever had been. While The Waterfront boomed, the remaining parts of the old Homestead Works at Carrie became more of a financial burden to the already overburdened communities of Swissvale and Rankin, in which it sat. Moreover, the neglect and decay of the facility were becoming evident.

In 2005 local elections ushered in a new county executive for Allegheny County. SIHC was able to convince him and his administration that the County's purchase of the Carrie site would preserve the furnaces, and that this restoration would become the keystone in redeveloping the remaining brownfield. With the strong support of the local governments to preserve the furnaces, Allegheny County moved forward on negotiations and purchased the property. It later entered into a compact with the local boroughs and SIHC to co-develop a plan for the brownfield's ultimate reuse, including the restoration of the historic furnaces.

Today, Carrie Furnaces stand as sentinels to the historic steel industry of Pittsburgh and southwestern Pennsylvania. With the support of Allegheny County, SIHC won National Historic Landmark designation of the furnaces and the Rankin Hot Metal Bridge in 2006. Funds have been secured and continue to be raised for their stabilization

and preservation. Legislation has been introduced in the US Congress to designate the furnaces, the Rankin Hot Metal Bridge, and the Battle of Homestead site as a National Historic Site within

THE OLD GRITTY INDUSTRIAL IMAGE of Pittsburgh, once an embarrassment...has instead become a point of pride for a region that honors its blue-collar roots while looking toward new industrial horizons.

the National Park System. Allegheny County, partnering with SIHC and the local governments, is moving ahead on plans to prepare the remainder of the site for development.

The old blast furnaces have come back to life in a new way, with SIHC's routinely sold-out Hard Hat Tours, conducted by former steelworkers from Carrie, educating thousands of visitors about the remarkable industrial past of southwestern Pennsylvania. Moreover, the old gritty industrial image of Pittsburgh, once an embarrassment that the region's marketing and promotional material sought to whitewash, has instead become a point of pride for a region that honors its blue-collar roots while looking toward new industrial horizons.

Once standing as rusting behemoths viewed as impediments to the redevelopment of an industrial site, the Carrie Furnaces are now front and center of a grand development plan, testament to the fact that preservation of history and heritage can indeed be critical components to economic development and community revitalization. **FJ**

AUGUST R. CARLINO is the president and chief executive officer of the Steel Industry Heritage Corporation, the management entity of the Rivers of Steel National Heritage Area. For more information on Carrie Furnaces and Rivers of Steel, please visit www.riversofsteel.com.

Approaches to Preserving Montana's Industrial Structures

CHERE JIUSTO

Twenty-first century America is full of the remains of 19th- and 20th-century industry, from a 150-year period when the engines of manufacturing and production propelled this nation to economic dominance and prosperity. A time of unrivaled productivity, developing nations passed through a doorway that led from an animal-powered world to one powered by electricity. That era gave us industrial sites

speed, in just a generation we have witnessed a transition from a manufacturing-based economy to an information-based society. As our society moved from an industrial epoch to the age of information, communities across America rapidly shed outmoded technologies.

Along the way, the hulking structures essential to industrial processes were abandoned and often left standing. Today post-industrial cities and towns of

ACROSS THE CONTINENT, industrial *buildings* such as textile mills, trolley sheds, and railroad depots have all been successfully rehabilitated. Industrial *structures* are another story.

America struggle to survive and remember the industrial activities that were part of their past.

and architecture that were pure in their devotion to functionality—massive steel, iron, and concrete creations that gave no thought to aesthetics. Muscular, unvarnished, and gritty, today this industrial architecture stands vigil to that history.

Once the dominant way of life, reliance on American industries such as brick manufacturing, ore smelting, charcoal burning, or cloth making for employment and products gave way, by the turn of the 20th century, to the purchase of such materials from other regions and foreign countries. Meanwhile, extractive industries such as metals mining and logging exhausted their supplies or went dormant as markets shifted.

And, just as industry shifted our nation's fortunes with breathtaking

In the wake of all this change, we are challenged to preserve this remarkable legacy, to pay tribute to the history that has enriched our nation and to dignify the stories of the people who labored to produce this vast wealth.

PRESERVATION CHALLENGES

These days there is much interest in adapting the remains of old industry to new uses: across the continent, industrial *buildings* such as textile mills, trolley sheds, and railroad depots have all been successfully rehabilitated. Industrial *structures* are another story. Designed to carry out mechanized production rather than to house human activities, these resources often prove more difficult to adapt to new uses.

In our state of Montana, the vestiges of mining and smelting made the greatest imprint. Forever memorialized in our state motto “Oro y Plata (Silver and Gold),” 150 years of metals mining produced a legacy of head frames, hoists, glory holes, smelting furnaces, and stamp mills. Beyond direct mining resources, the ghosts of major supporting industries—logging, agriculture, transportation, and hydropower—still haunt the landscape. The cultural landscape of Montana, like many other Western states, is enriched by its mine yards, brick kilns, grain elevators, railroad trestles, steel bridges, turntables, flumes, and dams—abandoned structures that once were the backbone of our state’s economy.

Today these resources loom large in the landscape, reflecting the means by which heavy industrial production transformed our culture. Preserving these industrial relics presents a daunting challenge; their jumbo scale and unmaintained condition, coupled with a need for environmental remediation, all make for a complex task. In addition, many of the tools that provide incentives for preservation projects were conceived with the goal of breathing life into old buildings by re-inhabiting them. The most widely used tool, federal and state preservation tax credits, is tied to “income producing” properties—not the best fit for a smokestack or a lime kiln which generally don’t hold much potential to house new businesses or loft apartments.

Structures such as these are artifacts, formerly the cogs of industrial systems. Today they remain in situ representing the past and the stories associated with them. It takes creative community leaders and preservationists to tackle the protection of these resources. While some may

lend themselves to adaptive use, just as often, their highest and best new use lies in their representational qualities and potential for interpretation.

In considering the preservation of hard-to-reuse industrial heritage resources, we offer some examples of successful adaptation. Primarily these solutions revolve around being able to put people into all or some parts of industrial structures. So we see examples from Michigan where a mining drill house now holds a curling rink, to Texas and Oklahoma where historic grain elevators have been converted to climbing gyms, to Montana where a city water treatment plant is now an art center.

In seeking to adapt industrial properties, then, the solution seems to be in making them more accommodating to housing human activities or in stabilizing them for active interpretation. For difficult industrial properties, three basic approaches to preservation and conversion suggest themselves: continued related use, adaptive new use, and interpretive non-use.

CONTINUED RELATED USE

The top choice for preserving industrial structures is the one most true to their history: to keep these heritage resources in a use that is the same as or similar to their original purpose. In an ideal world, keeping original structures in place and in use yields the highest form of preservation, saving both the structures and the activities that are significant to our history.

So, for example, the historic foundry in Anaconda, Mont., continues in operation today as an iron foundry and fabrication business. A strong contributor within the Butte-Anaconda National Historic Landmark, the 120-year-old Anaconda Foundry Fabrication Com-



At the Archie Bray Foundation, artistic sculptural expressiveness combines with industrial heritage on the grounds of the former Western Clay Company brickyard. By preserving the company's early kilns (such as the beehive kiln shown here), the foundation highlights the continuity of the site's use.

PHOTO BY CHERE JUISTO, COURTESY OF MONTANA PRESERVATION ALLIANCE

pany buildings are in an excellent state of integrity. The production floor of this factory has been transformed with the addition of computerized equipment and laser cutters. Around the edges, however, are the remains of the earlier processes—the belt-driven machinery and massive equipment no longer in use but still present within the 19th-century brick walls in this historic complex.

In a similar way, the Archie Bray Foundation in Helena occupies a historic brickyard that has evolved from a materials manufacturing facility to an art center with an international reputation. The story began in the 1950s when a pair of 20-something Montana artists, Rudy Autio

and Pete Voulkos, began tucking their pots in among loads of bricks being fired in the beehive kilns of an aging factory. Along with bricks, sidewalk pavers, and sewer pipes, the kilns at the Western Clay Manufacturing Company began to bring forth teapots and platters, mosaic tiles and ceramic sculptures that found their way into the collections of art lovers from New York to Los Angeles. Literally and symbolically, the kilns of the Bray provided a crucible in which art ceramics were fired and a 20th-century art movement was born.

With clay company bricks, the potters built art studios and ceramic kiln sheds on the grounds of the old factory. Visits by international potters during the 1950s

and three decades of artists-in-residence brought the Archie Bray Foundation for the Ceramic Arts national acclaim. Meanwhile the brick manufacturing business died away, and in the mid-1980s the artists bought the old brickyard and all that came with it—tunnel kiln, five beehive kilns, drying sheds, rail spur, and piles of old brick.

This year the art pottery will celebrate its 60th anniversary, and the Montana Preservation Alliance (MPA) has partnered with the organization in that celebration by helping to stabilize the first of those kilns. And so, while the historic kilns are no longer fired, they are still on site as a backdrop to an ongoing tradition of forming and firing clay into products and vessels.

ADAPTIVE NEW USE

Conversion of industrial properties to new uses is another approach to industrial preservation. These transformations often surprise and delight people. In Montana, a few projects stand out.

First, the conversion of Butte's Original Mine yard to a performance space is an inspired new use for a defunct old copper mining site. While the mines ran a mile down under the earth, the mine hoists and mechanical systems sat atop the ground, surrounded by mine yards that held numerous buildings, equipment, and tailings. There are 14 head frames still standing in uptown Butte, owned by the city and the pride of the community as symbols of its mining heritage. From 2008 to 2010, Butte's Main Street program

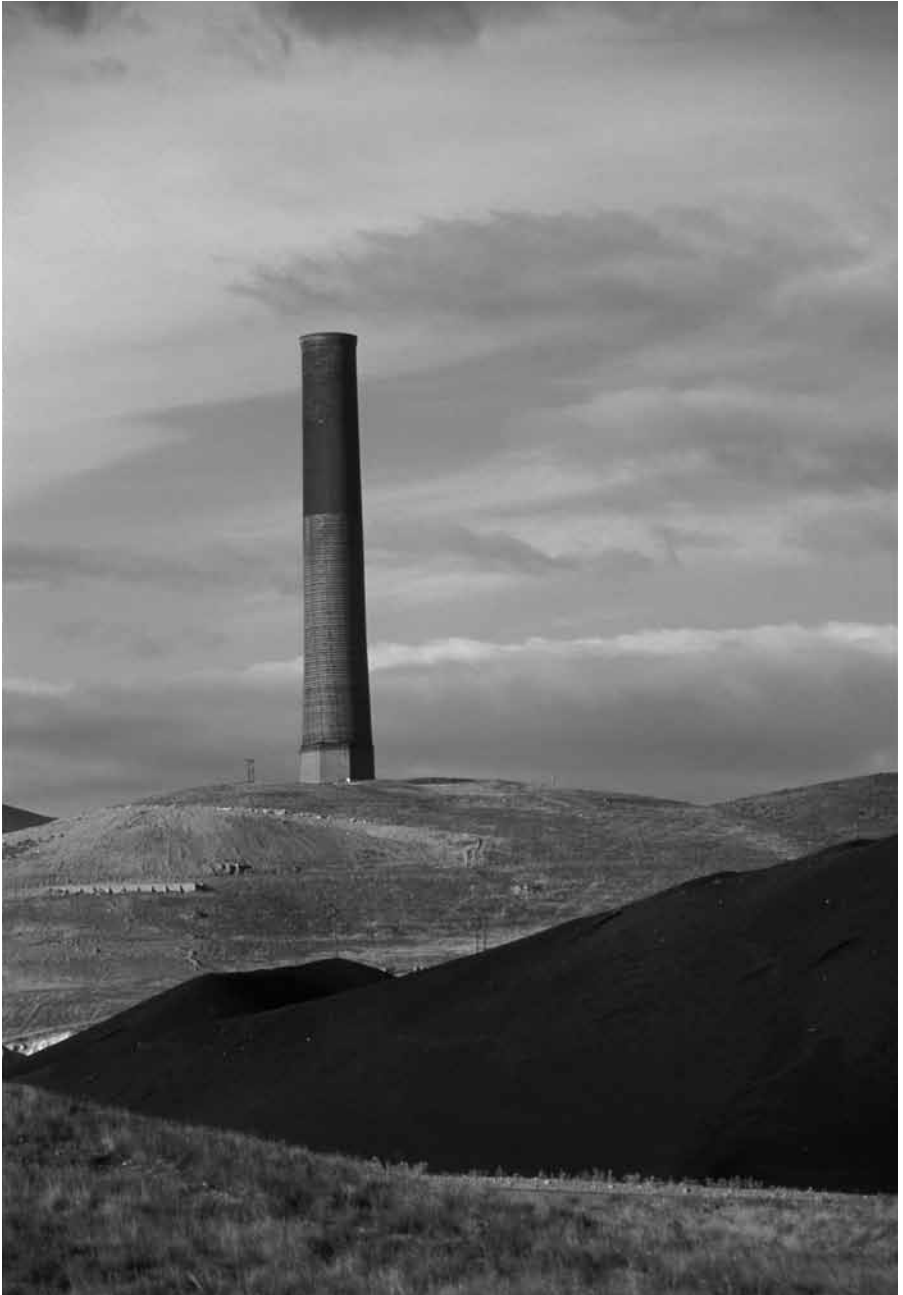
hosted the National Folk Festival and, in a whimsical decision, selected the Original Mine head frame to serve as the main stage. The stage was built at the foot of the structure while the remediated mine yard was landscaped into a grassy bowl to hold overflow crowds. Hundreds of thousands of music lovers will long remember the panoramic views from the most distinctive stage anywhere, and while the festival moves on this year, the stage will stay.

Near Bozeman, conversion of the 70-foot grain elevator to a home makes for a unique six-story residence. Built in 1914 when homesteading was booming and Montana grain was in high demand, the elevator served farmers in the surrounding rural communities for decades. But by the 1980s it was out of service, and it was sold to new owners who worked for seven years to convert the elevator into a home. It is estimated that by the early 20th century there were as many as 27,000 elevators across the country. In recent decades, closure of rural rail lines and centralization of grain-loading facilities has led to widespread abandonment and demolition of elevators. The multi-level bin structures present many challenges for reuse, while the value of the weathered wood and framing timbers caused many to be sold

This aerial view of the National Folk Festival, held in uptown Butte, shows the main stage just below the base of the Original Mine head frame. The historic community remediated the sloping mineyard to become an outdoor amphitheatre.

PHOTO BY TONY DIFRONZO, COURTESY OF MAIN STREET BUTTE.





The Anaconda Smelter Smokestack is the towering symbol of the copper mining era in southwestern Montana. The Anaconda Smelter Stack State Park, part of the Butte-Anaconda National Historic Landmark, commemorates and interprets outstanding industrial mining and labor history in Montana.

PHOTO BY CHERE JIUSTO, COURTESY OF MONTANA PRESERVATION ALLIANCE

for scrap. The residential conversion of the six-story grain elevator at Anceny is a success story and an encouragement for all hoping to preserve elevators.

One of the most unusual industrial conversions in Montana took place in 1977 in Miles City, where the city arts group converted the 1910 water treatment plant to a community art gallery. The holding tanks are now dry, and paintings line the walls while budding artists take classes in the building. Renovation of the building was an early reuse project that generated a lot of comment at the time and continues to honor the creative spirit of this rural community's leaders.

INTERPRETIVE NON-USE

And finally, there truly are sites and structures that defy reuse and for which interpretation is the highest and best function. For these sites, the commitment to commemorating and interpreting their history is an alternative to seeing them lost to time.

The Anaconda Smelter Stack State Park offers interpretation of a 585-foot radial brick smokestack that, when built in 1919, was the world's tallest free-standing structure. Symbol of the mighty Anaconda Copper Mining Company which long dominated Montana's economy and politics, the stack towers over

a landscape that bears the scars of the mining epoch. At the turn of the 20th century, the towns of Butte and Anaconda were the heart of copper production, turning out miles and miles of wire that enabled America to electrify. Perched on a promontory and surrounded by acres of black slag piles, the smokestack is the lasting vestige of the Anaconda smelter, dismantled in

the 1980s. Much was removed, but when it came to the stack, the community of former smelter workers and underground copper miners protested vigorously to save it from demolition. "Save the Stack" was their rallying cry, and the result of their determined advocacy was that the stack was rescued, and a state park created that tells the story of the decades of mining and smelting that took place in the shadow of the smokestack.

LESSONS LEARNED

So what are the strategies to take us into the 21st century, while preserving endangered industrial heritage sites and the stories that they represent? Clearly these examples were challenging properties and the effort needed to preserve each one was daunting. Still, few have argued over the years that it was a mistake to save them. These are landscapes of work, places where industrial workers toiled, often in the harshest of conditions. Today they are much-loved heritage properties that enrich our lives and our understanding of past events.

From the Butte-Anaconda National Historic Landmark (NHL) we can take many lessons. When mining and smelting were

ONE CLEAR NEED is for documentation to begin immediately, as industrial properties can pose health and safety concerns and disappear before their significance is truly appreciated.

curtailed in 1981, the enormous mining landscape immediately became the focus of cleanup, restoration, and interpretation. Now 30 years later we can benefit from the knowledge and learn from the experiences of those who accomplished this.

One clear need is for documentation to begin immediately, as industrial properties can pose health and safety concerns and

disappear before their significance is truly appreciated. In Butte-Anaconda, the heritage resources of both towns—including thousands of industrial, residential, and commercial structures and sites—were recorded. It is essential to document, study, and better understand resources in context before they are lost. The Society for Industrial Archeology has moved these efforts forward, but it deserves much more help and support from the rest of us preservationists. Thematic studies of mine sites, depots, grain elevators,

heritage of Butte and Anaconda, along with other sites across the country. Environmental clean-up in these cases has presented the biggest opportunities to preserve heritage while making the land and community cleaner and healthier.

As for private sources, new business investment can be an important prospect. And in the nonprofit realm, in Montana, we are greatly indebted to The J.M. Kaplan Fund of New York and the National Trust for Historic Preservation, who have shown

great leadership on this issue since 2008. The J.M. Kaplan Fund has taken a keen interest in threatened industrial

ANOTHER CLEAR NEED is creative thinking. The time to think outside the box is now. In Butte, the creative spark has led to many projects that gained support of the entire community.

barns, and kilns will help us to assess the significance of sites and may provide insights that lead to preservation.

Another clear need is creative thinking. The time to think outside the box is now. In Butte, the creative spark has led to many projects that gained support of the entire community. Looking outside can also inspire new ideas. One idea that comes to us from Europe is a renewable energy program that provided funds to farmers among others to install solar panels on their barns. Conversion of large buildings such as barns and grain elevators to community powerhouses is just one example of the innovative thinking needed to move us toward industrial preservation solutions.

And of course, to preserve aging industrial structures, one of the biggest challenges is obtaining funding. Government financial support comes into play in post-industrial sites, and includes such options as remediation funds, Brownfields programs, and Superfund projects. Smart use of these programs by public officials has been instrumental in saving the mining

sites, sounding the alarm in ways that helped motivate action. In partnership with The J.M. Kaplan Fund, the Montana Preservation Alliance has aided the preservation of seven signature industrial properties, including a Butte hoist house, the beehive kilns at the Archie Bray Foundation, and a pair of historic brick silos that are the icons of rural Broadwater County. Each investment has leveraged dollars by owners and the communities, far beyond the required 1:1 match. But the funds provided created a real incentive to spark each project and made the difference in guiding how much preservation was possible.

In the end, saving our endangered industrial heritage is a tall order made easier by engaging many strong partners and pulling systematically in the same direction. Broad, sustained efforts combined with a good measure of creativity will help us move orphaned industrial resources off our endangered lists and on to new roles in which they serve our communities in productive ways. FJ

CHERE JIUSTO is the executive director of the Montana Preservation Alliance.

Financial Incentives for Saving Industrial Heritage in North Carolina

J. MYRICK HOWARD

At November's *Industrial Heritage Retooled* symposium, I felt somewhat like a broken record. "Show me the money" was the gist of my repeated assertions. Industrial complexes are usually big and, well, *complex*, and their preservation—whether as a ruin, as a public site, or for continued or adaptive use—is highly likely to be expensive and risky.

In North Carolina, we've seen a wholesale change in our employment base during my lifetime, and the result has been the abandonment of hundreds of century-old factories. Without a powerful financial incentive for their reuse, those historic facilities would remain empty—or even worse, salvaged in the name of economic development to provide wood for heart-pine flooring and decorative beams for kitchen ceilings. In 2006 the North Carolina General Assembly enacted the "mills bill" to encourage the rehabilitation of historic factory complexes. This article describes the creation of that incentive.

PNC'S FIRST EFFORTS

Preservation North Carolina (PNC) is best known for its endangered properties program, a.k.a. its revolving fund. Best described as an "animal shelter" for historic buildings, our organization seeks to find buyers or stewards for endangered

properties. It's hands-on preservation at its most basic. Troubled property? We try to gain site control through an option to purchase, donation, or outright purchase (the last resort), and then we market the building, promoting every positive attribute and available incentive that we can muster.

Preservationists in North Carolina were concerned about the state's industrial heritage in the 1970s. Brent Glass, formerly with North Carolina's SHPO and now head of the Smithsonian's American History Museum, published an inventory of the state's historic industrial sites in the late 1970s. In 1979, in my first year on

IN NORTH CAROLINA, we've seen a wholesale change in our employment base during my lifetime, and the result has been the abandonment of hundreds of century-old factories.

the job at PNC, I was working to preserve an early 19th-century brick shipping warehouse in Washington, N.C. Using the newly expanded federal rehabilitation tax incentives, that warehouse was adapted for use as a marina along the Pamlico River, a use which it still serves.¹

A few years later PNC worked to preserve a former steam engine house that milled the ore for Piedmont North Carolina's gold mining industry. The 1834 stone structure was all but a ruin located back in the woods of Guilford County. The state's gold industry went out of business after the 1848 California Gold

Rush. Working to preserve a structure that had been vacant for more than a century presented a distinctive set of challenges. Again, a passionate buyer and the federal rehabilitation tax credits saved the day. Because the structure was in ruins, meeting the tax credits' rule requiring that 75 percent of the walls be intact required creative math. The structure's huge stone chimney provided hundreds of square feet of unbroken wall surface that could be counted toward the 75 percent. The gold mill was successfully reused as a special events facility, where the adaptively renovated industrial structure serves as a backdrop for weddings, luncheons, dinners, and an annual medieval festival. Without PNC's revolving fund, the federal tax incentives, and, most important, a dedicated and creative purchaser, the structure would surely be gone today.

The keynote address at the *Industrial Heritage Retooled* symposium given by Sir Neil Cossons, former chairman of English Heritage, underscored the value of that gold mill. I was spellbound by

Cossons' presentation on the early-19th-century Welsh stone mining structures and their diaspora that have received World Heritage Site designation. The rock engine house for North Carolina's gold mining industry was built by a Welsh coal mining engineer who had immigrated to the States. The structure was remarkably similar to those in Wales and clearly part of that diaspora.

MORE ABANDONED SITES

Over the next decade, PNC worked on a sampling of industrial structures, always relying on the federal tax credits to provide the needed extra incentive for their preservation. In the 1990s, things changed. Due to shifts in the global economy, spurred in the American economy by the enactment of NAFTA (North American Free Trade Agreement), North Carolina's industrial landscape altered dramatically, leaving behind dozens of giant turn-of-the-century historic factories that were no longer needed. When I was growing up, we were taught that North Carolina's economy depended on tobacco, textiles, and furniture. Over the period of one decade, all three of those industries were leaving the state in droves. When I grew up, my hometown of Durham was internationally known for the manufacture of cigarettes; by the end of the 20th century, Durham had no tobacco industry. But it had plenty of vacant industrial buildings.



Renfro Mill in Mount Airy is a small-town industrial facility that was renovated into upscale condos. The buyers were primarily local empty nesters interested in moving out of their single-family homes into residences with high ceilings, tall windows, maple floors, and unmatched character. The mill is downtown, in walking distance of numerous shops and services. Buyers were able to take advantage of the state's tax credits for homeowners.

PHOTO COURTESY OF PRESERVATION NORTH CAROLINA

These giant unused buildings presented both challenges and opportunities to a local community. As communities were quickly learning, a large vacant mill can be a cancer if it remains empty. Surrounding neighborhoods and commercial districts will deteriorate, and crime will increase. The building itself will be subject to vandalism, vagrancy, and arson. Businesses and individuals looking for relocation opportunities will perceive the town as dying, speeding the downward spiral.

Alternatively, a large old factory or mill that is reno-

vated for new adaptive uses, or for new industrial or business uses, can provide an economic boost. Used as an incubator or business development center, it offers inexpensive space for job development. Rehabbed for mixed uses, an old building may attract tourists and stimulate economic growth, creating housing and new businesses without sprawl.

Because of the plethora of vacant industrial buildings, PNC's properties program became more and more involved in the 1990s with preserving industrial heritage. In 1995, PNC was given an entire cotton mill complex in Edenton, including the factory and the mill village. The mill had been closed down, and the textile machinery had been shipped to Guatemala. A year-and-a half later PNC acquired Glencoe, a long-vacant mill complex (again including the mill and the mill housing) through a bargain sale. After a few more months, the huge Loray Mill in Gastonia, site of an internationally renowned 1929 strike, was donated to PNC, and the organization acquired another mill in Eden through a bargain sale.

STATE TAX CREDIT

It was apparent that a deeper incentive would be required to successfully meet the challenge of preserving the state's industrial heritage. In 1997, PNC led an effort to procure enactment of a state tax credit for both income-producing and homeowner use (20 percent and 30 percent respectively, spread over 5 to 10 years). Over the course of the next decade, those credits would promote nearly a billion dollars of historic

AS COMMUNITIES were quickly learning, a large vacant mill can be a cancer if it remains empty. Surrounding neighborhoods and commercial districts will deteriorate, and crime will increase.

rehabilitation, resulting in \$1.4 billion in economic impact. The credits were critical to the successful renaissance of the mill villages in Edenton and Glencoe; mill houses were once again homes.

In the state's larger cities, the tax credits were key to the adaptive use of numerous vacant tobacco, textile, and furniture factories. Where affordable housing tax credits were available, they could be combined with the historic rehabilitation tax credits to provide the needed capital, such as with the mill in Eden.

But, as we at PNC were directly learning through the work of our revolving fund, the subsidy wasn't sufficient to work for large industrial projects in smaller towns. The risk was too high to attract needed capital. With a large industrial building, you can't phase key elements of the project. Loray Mill alone had two acres of roof and more than 600 windows.

THE MILLS BILL

In 2004, taking advantage of my long-time position as an adjunct lecturer in city planning at the University of North



The renovation of the Durham Hosiery Mill #8 in Mebane for affordable housing is taking advantage of the state's new tax credit for mill renovation, enacted in 2006. The two-tiered tax credit rate is designed to especially promote the rejuvenation of historic industrial complexes in the state's smaller towns. The mill is interesting as an early example of reinforced concrete construction for industrial use.

PHOTO BY MARTY COOKE, REHAB BUILDERS

Carolina, I encouraged a bright young graduate student (Andrew Stewart) to do his master's project on developing an enhanced incentive for the rehabilitation of historic mill buildings. To give him "real world" experience, I offered to involve him throughout the whole process of enacting a piece of legislation, from start to finish. In his first month working on the project, three large historic mills were demolished for salvage. The assignment had suddenly turned into a race against the clock.

We met with one of PNC's champions in the legislature (Representative Deborah Ross), who provided us with a strategy for getting an incentive for mills passed. Weeks later, the "mills bill" as it came to be known was introduced with strong bipartisan sponsorship in both houses. The bill proposed to increase the state tax credit from 20 percent to either 30 percent or 40 percent, depending on the relative wealth of the county. More important, it allowed the credit to be taken in one year for income-producing projects, rather than over 5 to 10 years as with the existing rehabilitation tax credit.

The strategy was to emphasize jobs, jobs, jobs. The factsheet created by PNC to promote the bill identified the need

accordingly: "North Carolina has lost more than 250,000 manufacturing jobs in the last decade, leaving behind numerous empty industrial buildings." Based largely on Andrew's study, the legislature's fiscal research concluded that the bill would be a catalyst to promote \$259.4 million in historic rehabilitation spending in its first five years at a total cost of \$39.9 million to the state. PNC identified the numerous ways that the bill would benefit the state:

- Direct income and sales taxes for the State of North Carolina (estimated at \$22 million during the five-year period; the State will receive the benefit of these taxes 18-30 months prior to paying out the tax credit)
- Indirect income and sales taxes (from expenditures of construction workers, suppliers, etc.)
- Construction jobs (estimated at 2,000 per year)
- Permanent jobs (jobs created by businesses that occupy the rehabilitated buildings)
- Revitalization of historic mills, surrounding neighborhoods, and downtowns
- Attraction of new businesses
- Significant increases in local property tax revenue
- Reuse of existing infrastructure (roads, water, sewer, etc.)
- Increased federal investment in N.C. due to the increased use of federal tax credits
- Utility revenues for local governments
- Cleanup of environmental contamination at private expense

The preservation of the state's industrial heritage, clearly a priority for PNC, was scarcely mentioned. We stayed focused on jobs. Before the end of the legislative session, the bill passed with almost no dissenting votes. Andrew was in the gallery to see "his" bill enacted into law.

When the bill had to be renewed in 2010, the SHPO reported that the rehabilitation of 23 mills was underway or completed, with an estimated \$305.4 million in rehabilitation expenditures. The credit was extended without opposition.

The mills bill greatly improved the prospects for the renovation of factories in smaller towns and cities. Morganton (pop. 17,000) benefited from a \$10.8 million renovation of a hosiery mill; the city moved its city hall to the building in order to anchor the project. A downtown knitting mill in Albemarle (pop. 15,000) was renovated at a cost of \$5.5 million, after sitting vacant for years. A hosiery mill in Mebane (pop. 10,000) is currently being rehabilitated for senior housing. The mills at Edenton and Glencoe (PNC's mill village projects) were both beneficiaries of the bill. We have high hopes that Loray Mill will be next.

CONTINUING CHALLENGES

If preservationists are serious about saving the nation's industrial heritage, we must find additional incentives for their reuse. These complexes are fragile. In the marketplace, many are more valuable as salvage than as intact structures. Local governments can be enthusiastic allies when there are prospects for renovation of these sites, but after too many years of vacancy they can be equally keen for demolition.

"Show me the money—and soon" needs to be our mantra. In North Carolina,

the clock is ticking on our state's historic industrial heritage. It's folly to think that we can preserve these places as museums or as sentimental ruins. It's also folly to think that we can repopulate many of them for their original purposes. Our textile and tobacco factories will probably never be used again for their original purposes, and in many ways that's okay. They will become the locations for future industries, such as software and biomedical companies, and homes for the next generation. These buildings will serve us well as bridges from the past to the future.

North Carolina's industrial heritage is being saved at a pace unimaginable 20 years ago, thanks to our tax credits. And the story continues. My former student, Andrew Stewart, is now president of



The Edenton Cotton Mill was rehabilitated using the state's tax credits, which were in many cases passed along to buyers of the condominiums in the mill. The renovation of the mill and homes in the adjacent mill village added more than \$20 million to the local tax base.

PHOTO COURTESY OF PRESERVATION NORTH CAROLINA



Activity abounds at the historic American Tobacco campus where high-tech offices, arts facilities, restaurants, and residences adjoin the Durham Bulls Athletic Park and the Durham Performing Arts Center. In 2009 the Bulls became the first Class-A baseball team in history to pass the 300,000 mark in attendance for one season. Built across the street from the historic rehabilitation project, the arts center is now ranked as one of the top ten performing arts facilities in the country, based on ticket sales.

PHOTO BY JERRY BLOW

Empire Properties, a major developer of historic properties in downtown Raleigh, N.C. He's also treasurer of PNC's board. Deborah Ross, our legislative champion, received PNC's top award last year for her efforts. And in Durham, my hometown, more than \$300 million has been spent on rehabilitating mills and warehouses in and around downtown. The impact has been phenomenal on the city's self-image and quality of life.

It gives me a special sense of satisfaction to enjoy a meal or go to a meeting at the renovated American Tobacco campus in Durham, a complex of more

than one million square feet of rehabilitated buildings. It's the factory where my father and numerous other relatives worked. For me, preserving North Carolina's industrial heritage isn't just an abstract pursuit. It's about preserving my own heritage. **FJ**

J. Myrick Howard is president of Preservation North Carolina.

- 1 We strongly encouraged the buyer to build a "contemporary" addition on the building, in line with the then-current version of the Secretary of the Interior's Standards for Rehabilitation. Through the decades I have wavered from satisfaction to embarrassment about that addition, and back again. Now it's also old enough to be gaining the patina of "retro."

Forum

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