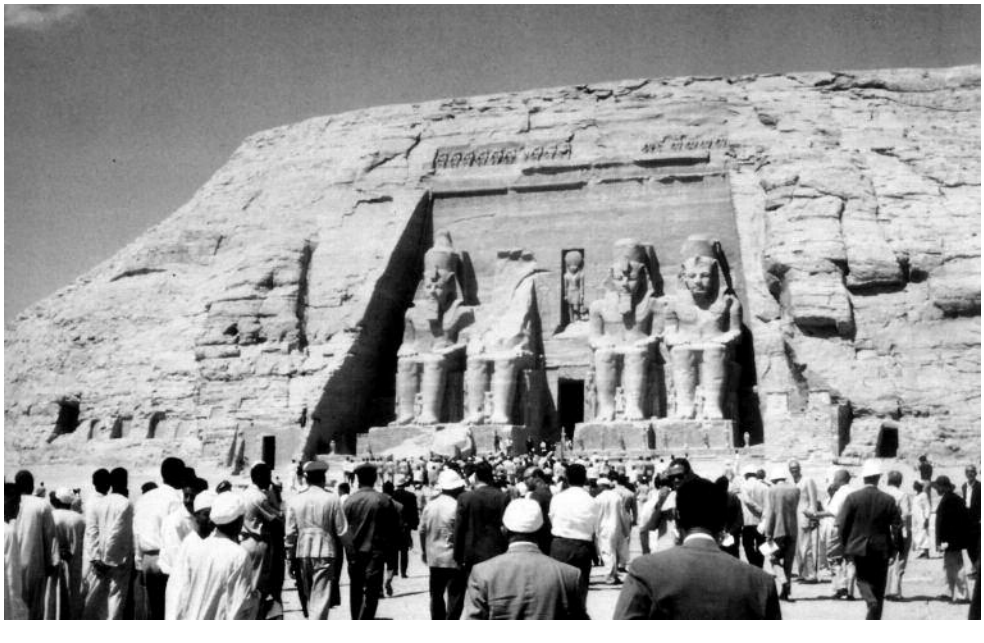
Large temple of Abu Simbel, Egypt, built ca. 1264–1244 BCE, reconstructed 1960–1968 CE. Photograph of re-inauguration day, September 22, 1968, by Torgny Säve-Söderbergh.



Integrities: The Salvage of Abu Simbel

LUCIA ALLAIS

In 1965, British architectural historian and technology enthusiast Reyner Banham wrote a letter to a preservationist who had asked him to intervene against the demolition of the Reliance Building in Chicago. "The day you find me speaking up for the preservation of any building whatsoever," Banham wrote, "send flowers, the next stage will be the general paralysis of the insane." Banham refused to engage in what he called "idiotic preservationist panics" for fear of being subjected to similar requests from "every crackpot period group and broken-down country-house owner in England."[1] But he could also have aimed his sarcasm at preservationists with much more cosmopolitan tastes. In 1965, after all, Le Corbusier's Villa Savoye was declared a national historic monument in France, thanks in part to an international advocacy campaign by modernist architects and historians, including Siegfried Giedion.[2] The mid-1960s constitutes something of a historical turning point, when a wave of fervor swept up architects and architectural historians of every allegiance across Europe and North America, and transformed architectural preservation from a fringe movement into a mainstream political cause. A few dates serve to evidence this shift. In 1963, architects (including Philip Johnson) joined urban activists (including Jane Jacobs) to protest the demolition of New York's Penn Station. In 1964, a group of architects and archaeologists from sixteen countries coauthored the Venice Charter, the first international document to call for the protection of both monuments and historic sites. At the 1965 White House conference where the phrase "world heritage" was coined, visionaries R. Buckminster Fuller and John McHale joined architectural historian Vincent Scully to recommend that "the cultural diversity of the earth" be conserved as a resource, akin to oil or gas.[3] This three-year period is bracketed by major acts of legislation that extended the legal protection of historic buildings to entire urban districts: the 1962 Loi Malraux in France and the 1966 National Historic Preservation Act in the United States. In 1972, the World Heritage Convention was signed by the United Nations' cultural agency, Unesco, establishing mechanisms for protecting sites of natural and cultural heritage worldwide.

So where Banham saw "idiotic panics," others saw political empowerment.

The timeline I have sketched out is rapidly being historicized as the start of a dramatic rise in the political power of preservationists, coincident with a global shift from conserving individual monuments to preserving entire environments. According to this new historiography, the 1960s saw an enlargement of preservation's domain and a concurrent expansion of its political effectiveness worldwide. The preservationist Alan Powers even identifies 1965–1985 as a "heroic period of conservation," when the "parallel progress of voluntary association and legislative and administrative action, combined with media pressure," triggered a politics of expansion that aimed to establish "the place of conservation in life as a whole."[4] Powers's use of the preferred British term *conservation* gives away his geographic specificity. But like many other national narratives, his story has international implications, whereby local "heroism" helped to ignite a global movement, which, in turn, followed the political example of national groups to bring pressure onto international organizations.[5] Thus, in an accumulating number of national histories, the globalization of preservation politics is ascribed to a convergence of political will along four axes: an alliance between modern architects and historic preservationists; a shift of media attention from object-buildings to urban ensembles and vernacular milieus; a joining of forces between nature conservationists and architectural activists; and a concerted effort by scholars to diversify the architectural canon and the demand for its protection. And so (the narrative goes) the protective boundary of preservation was progressively enlarged, by sheer force of activism, to include ever-larger sectors of the built environment.

The trouble with this narrative of progressive enlargement lies in its conception of architectural history; specifically, the notion that architectural monuments stayed the same while around them mentalities changed. If a new politics of expansion arose from a synchronous wave of activist practices, how was this politics enacted at the architectural scale? What values and criteria had to be invented for historic architecture to sustain its expanded political charge? Perhaps most importantly, how did preservation, once conceived as a *historical* accumulation of buildings in time, become a *spatial* practice that lays a claim to entire environments?

Some historians have pointed to the social, legal, and technological forms of mediation that intervened to accomplish this enlargement. In the 1970s, the German art historian Willibald Sauerländer commented on the growing consensus that an "extension of heritage" had occurred, but he expressed skepticism that the process had been purely additive. "To conserve is not only to preserve historical evidence but also to mediate it," he wrote. Instead he hypothesized a shift from quantity to quality—from art-historical "accumu-

lation" to a populist "cult of monuments"—and hinted that public demand for expanding the boundary of protection did not necessarily empower the people who found themselves inside that boundary.[6] International activists tracking this expansion on the global stage soon detected another layer of mediation, pointing out that case-by-case activism had been accompanied by a dissemination of norms. Piero Gazzola, founder of the International Council on Monuments and Sites (ICOMOS, the first nongovernmental organization devoted to architecture), remarked that preservationists turned their attention to urban spaces and vernacular typologies all over the world at the same time. "In the span of ten years," he wrote in 1978, "we have gone from punctual protection to global protection." But he also warned against thinking that this "diffusion of criteria" had created a blanket of control. "Total protection," he wrote, "can lead to non-protection."[7]

Over the next two decades, talk of heritage expansion turned to concern for heritage inflation. The French historian Françoise Choay, for instance, concluded her authoritative 1992 history of patrimony with a chapter on new technologies—of mass communication and transportation—which she blamed for turning heritage into an instrument of "hidden mediation" that fueled a "cult of passive self-contemplation" worldwide.[8] Appealing to Sigmund Freud, she detected in the diffuse globalization of heritage a strain of narcissism. "Heritage today," she wrote, "seems to play the role of a vast mirror in which we . . . contemplate our own image." More recently, the architect Rem Koolhaas has analyzed what he calls "the onward march of preservation" and confirmed Choay's diagnosis of passivity, concluding that "preservation is overtaking us."[9] In this formulation, preservation is a spatiotemporal mechanism that compresses historical values and disseminates them in order to control the built environment.

Together, Sauerländer, Gazzola, Choay, and Koolhaas provide the seeds for a critique of the heroic narrative of preservation history because they point out that the expansion of preservation has been accompanied by a fundamental shift in how historical and political agency operate through architecture. If historic preservation entered a new phase in the mid-1960s, it did so not only because preservationists acquired more political power but because power found new ways to circulate through the built environment. Architectural agency took on new norms, new forms, new techniques.

This article addresses the radical change that occurred in preservation's modus operandi beginning in the mid-1960s by telling the story of one episode when the expansion of preservation's domain "from the punctual to the global" was the subject of an international engineering competition. The objects of the competition were the temples of Abu Simbel: two massive

pharaonic shrines, fronted by eight colossal figures that were carved out of a sandstone cliff on the banks of the Nile during the rule of Rameses II in the twelfth century BCE. From 1960 to 1968, the temple complex was saved from drowning, moved 208 meters over and 65 meters up from its original site in a highly publicized international campaign led by Unesco. The salvage remains a world-historical event and an important marker in the history of preservation. The monuments were so large and monolithic that they blurred the boundaries between an architectural object and its site, and their salvage was part of a regional plan that exemplified preservation's expanded scale of operation. Furthermore, because the temples were so remote and had no "local" constituency advocating on their behalf, the question of what kind of technical and political mediation was required for their salvage was brought into particular relief.[10] They also offer a unique case study of the role technology has played in making historic preservation a global field of expertise. The salvage of Abu Simbel exemplifies the new model of monumentality that was catalyzed when new approaches to preservation mixed with geopolitical ambitions and experimental engineering.

In this article I focus on technology not only because the international preservation movement coalesced in reaction to a perceived acceleration of technological progress—although it is true that the proliferation of public works and engineering projects throughout the 1960s served as a rallying cry for both environmental and architectural activists. Nor is it simply that technological obsolescence became, in this period, the dominant criterion for determining what qualifies as historic architecture to be preserved—although many of the buildings that turned modernists into preservationists, such as Penn Station and the Euston Arch, had been built around industrial technologies, now newly old.[11] More generally, architects' attitudes toward technology were crucial in determining where they stood in the debates about the historical self-image of modernism and the fate of its most famous buildings. No doubt Banham's real objection to preservation was technological: for him, to be modern was "to keep pace with a technological situation," not to conserve and memorialize past architectural technologies.[12] Yet, like many other architectural practitioners during this period, preservationists tried to "keep pace" with history by adopting and adapting the technologies against which they were fighting. I focus on technology, then, because changing conceptions of history, including architectural history, must be thought in relation to changing technologies, particularly those building technologies that translated notions of historical progress, of development, of teleology—of time—into space.

Egyptian, Soviet, and Yemeni presidents Gamal Abdel Nasser, Nikita Khrushchev, and Abdullah as-Sallal "hurling rocks" into the gap to divert the Nile for the construction of the Aswan High Dam. *New York Times*, May 14, 1964.

Monument and/as Infrastructure

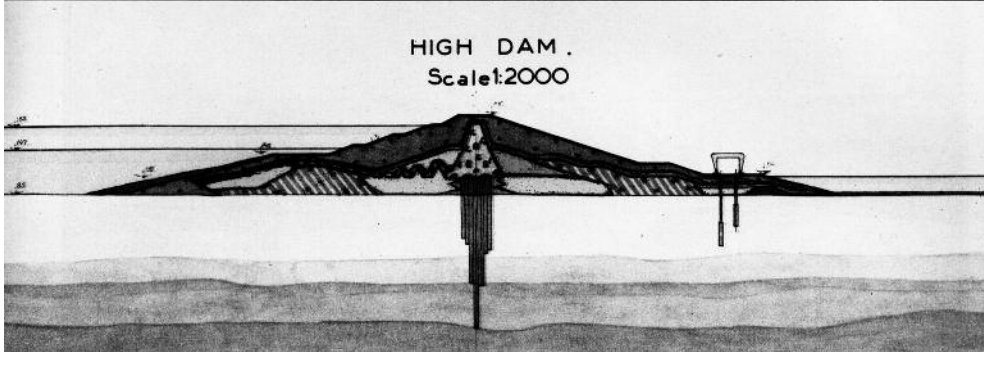
On May 14, 1964, the *New York Times* published a photograph of Soviet president Nikita Khrushchev and Egyptian president Gamal Abdel Nasser "hurling rocks" into the Nile to inaugurate the construction of the Aswan High Dam. Originally designed in 1946 by an international consortium led by a German-American engineer, the dam was to be one of the largest rock-fill dams ever built, its size commensurate with its impressive multipurpose task: to retain water in a gigantic reservoir lake, generating enough energy to electrify the Nile Valley all the way to the delta and permanently irrigate much of Egypt along the way. The dam was also to become the object of an intense and prolonged geopolitical tug-of-war. As soon as Nasser came to power in 1952, he made the project central to his plan for jump-starting the country's development and achieving agricultural self-sufficiency. Large infrastructural projects were frequently used by nonaligned leaders like Nasser to leverage their strategic position with both sides of the Cold War's East-West divide, and in 1956 Nasser approached the West, receiving an immediate offer to fund the dam from the World Bank, the United States, and the United Kingdom. But after realizing that this economic debt would not dictate Egypt's political allegiance, the Western consortium withdrew its offer. Defiant, Nasser nationalized the Suez Canal to raise funds for the dam—sparking a crisis that would shake up the Middle East for decades—and turned to the Eastern bloc for further support. By 1964, the dam was being built largely with Soviet money and expertise.[13] In this context, Khrushchev and Nasser's act of "hurling rocks" stands out as a raw and triumphant demonstration of technopolitics: a delegation, by sheer force of gravity, of an immense amount of political power to an enormous machine.

The inaugural photograph was disseminated in the West as a cautionary tale. Suspended in midair, the stones of the Aswan High Dam were carriers of a political force that could divert not only the flow of the Nile but also Western channels of influence in the Middle East. There was no shortage of infrastructural metaphors to make the point: Khrushchev used his Egyptian trip to declare his intentions to "drown capitalism on the African continent," and another photo opportunity the next day showed the leaders pushing a button, in unison, to detonate the first explosion that would demolish temporary construction digs. Western commentators witnessing this political theater responded by attacking the monumental qualities of the dam, calling it "Nasser's pyramid" and an "Egyptian monopolization of the Nile."[14] Not to be outdone in monu-

mental rhetoric, Nasser's Ministry of Information spent much of the early 1960s comparing the Aswan High Dam to the monuments of pharaonic Egypt. One pamphlet, aptly titled "Aswan: The City with Public Works More Grandiose Than Obelisks and Pyramids," computed that the dam would require "enough stone to build 26 ancient pyramids," a comparison made easier by the fact that the dam was itself "in the form of a collapsed pyramid."[15] But the ministry also emphasized the dam's absolute modernity. Whereas the pyramids were "monstrous architectural conceptions" that had wasted material and exploited labor for the memory of only a "few powerful men," the Aswan High Dam was a new kind of monument, "larger and more human" because it would remain active, in the service of all Egyptians, in hydrological perpetuity.[16]

The contest between two kinds of monumentality (the one ancient and static, the other modern and dynamic) was no mere metaphor. The six-trillion-cubic-foot lake created by the dam was projected to flood dozens of ancient temples and archaeological sites in Nubia that sat along the banks of the Nile. By 1964 the dam had become a veritable iron curtain neatly dividing the Nile Valley between Eastern and Western blocks, each side running a large-scale engineering project. Downstream, more than 800 Russian engineers built the dam and its associated power stations. Upstream, Nubia was crowded with Western archaeologists and engineers brought by Unesco to survey and salvage hundreds of monuments and sites.

The temples of Abu Simbel were the largest and most impressive of the temples, and they were understood from the start of the project as counter-monuments to the dam. Like the dam, they represented engineering projects of massive scale. Also like the dam, their salvage would require unprecedented international cooperation. But unlike the dam, which *generated* power, the colossi of Abu Simbel appeared to *absorb* the immense effort that was invested in them. For instance, in 1960, Unesco publicized its appeal to "Save the Treasures of Nubia" on the cover of the *Courier* with an image of the temples sitting impassibly, facing the Nile. Four years later, the temples appeared again on a *Courier* cover, which proclaimed this time that "Victory in Nubia" had been achieved.[17] Nowhere was the human agency required to achieve this victory in evidence: the temples sat unchanged, still facing the Nile impassibly. In contrast, Soviet publications commemorating Khrushchev's visit to Aswan depicted hydroelectricity as a source of political empowerment, proudly claiming that "Russian-Egyptian friendship" had built the dam. Against this political specificity, Unesco made use of what Bruno Latour has called its "sociological Esperanto" to describe the work of preservation: according to the organization's publicity material, "the world saved Abu Simbel."[18]



What does this mean? One place to start decoding Unesco's abstract language is the final engineering report for the salvage of the temples, whose preface breaks down "the world" into six collective nouns:

> The EGYPTIAN PEOPLE, through their GOVERNMENT, have shouldered the greatest part of the burden of this noble enterprise.
>
> UNESCO called on nations and people all over the world and urged them to make generous contributions.
>
> The ARCHAEOLOGIST, represented by specialists from Egypt as well as from other countries, outlined the fundamental conditions for the Salvage Operation.
>
> The CONTRACTOR, in the form of a Joint Venture composed of companies from Egypt, Italy, France, Germany and Sweden, executed the gigantic works involved.
>
> The CONSULTING ENGINEER planned and prepared the whole project and supervised the works. He also submitted this Report.[19]

This disembodied chain of human agency actually describes a specific set of actors who participated not only in saving Abu Simbel but also in the entire campaign to salvage the twenty-four other temples of Nubia. Each plural noun represents a human network whose presence in Nubia was carefully orchestrated: from Egyptian workers to foreign archaeologists and engineers to international bureaucrats. Elsewhere, I have described how this delicate orchestration can be understood as a design project that reconfigured the Nubian Desert into a new, massive exhibition space. Here it might suffice to note that this project was tacitly regulated by a logic of concentration and dissemination.[20] The design began in 1959, when Unesco assigned a priority to each temple, designating some as of "first" or "second importance," deeming the rest unsalvageable, and vetting proposals for new sites. Over the next twenty years, some temples were consolidated in four oases along the new lake, while others were dispersed individually as "ambassadors of Egyptian culture" in Western museums. To legitimate this work, Unesco invented an entirely new legal and bureaucratic framework for cultural exchange. But despite Unesco's guarantee of scientific and political neutrality, the overall effect of the temple movement was to optimize the number of tourists to the temples. In a sense, this redesign of the desert literalized what Gazzola called the passage "from the punctual to the global."[21] Once a sequence of points on a map, the monuments of Nubia became part of a global network wherein they retained their Nubian identity despite being dispersed across temporal and spatial discontinuities. So although the Abu Simbel temples were technically salvaged in situ (i.e., they were not,

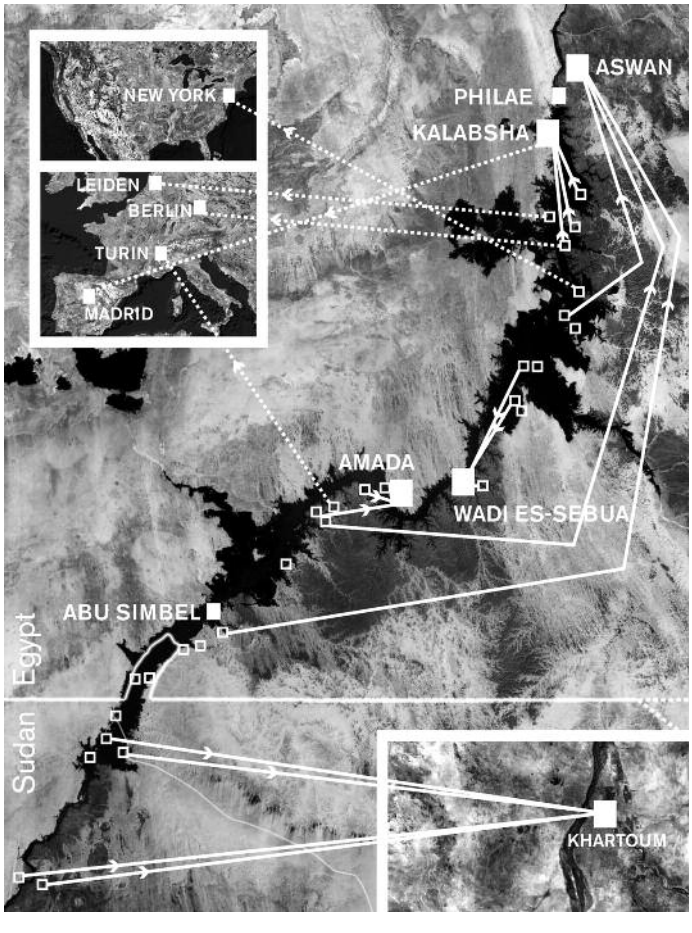
Egyptian Ministry of Information. Section through the High Dam at Aswan, 1959.

conceptually, relocated), they were fundamentally transformed by their movement, becoming the crowning moment of this new experiential complex—a new monumental infrastructure for a new nation-state.

Integrities

The task of salvaging Abu Simbel was never declared an international competition, but it unfolded as a series of alternative schemes proposed by national delegations and assessed by Unesco. For the organization's cultural officers, the project offered an opportunity to codify emerging international criteria for preservation, especially the concept of "integrity." Borrowed from ecological discourse, the idea of integrity appeared especially promising to conservationists eager to expand their activities beyond the walls of individual monuments because it implied that a matrix of relationships exists between all the elements of a given site.[22] But as in ecological thinking, the notion of integrity also provoked a constant slippage between ethical and scientific discourses. When applied to the moving of monuments, the term *integrity* alternately designated the morphology of a site, the material properties of an object to be moved, and the moral fiber of the person (or entity) doing the moving.

Unesco's judging committees were composed of a variety of disciplinary representatives, and each national team making proposals was also an experiment in collaboration. Most teams were led by engineers (who likely understood integrity as a structural notion) but also included architects (for whom integrity was a site-planning strategy) and sometimes preservationists (who focused on the material integrity of objects). This intricate division of tasks—among engineers and architects, individuals and institutions, nation-states and international organizations—was further complicated by an underlying debate over whether any modern human gesture should be legible in the desert. Here *integrity*, as a term applicable to environmental systems, became entwined with *integration*, an aesthetic notion that had been developed by European art and architectural

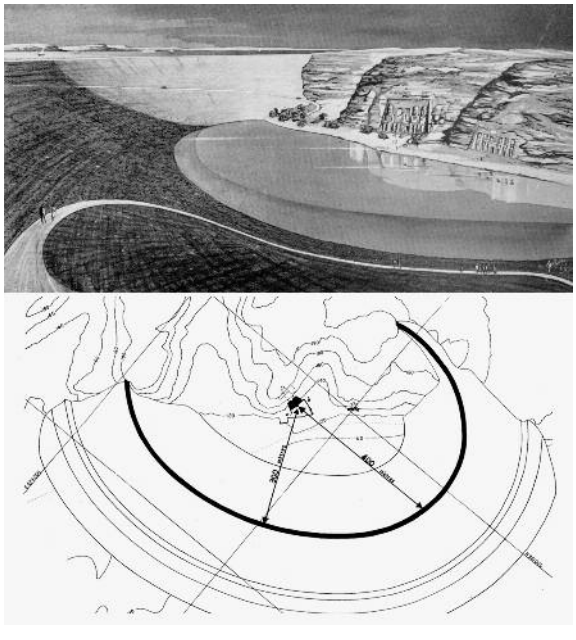


conservators since 1945.[23] And while each team's proposal can be read for its contribution to the new international discourse on integrity and integration, the rhetoric surrounding each scheme also reveals a preservation mentality strongly influenced by national traditions. These national discourses must be recalled along with the various salvage schemes proposed by each team—not in order to caricature them, but, on the contrary, to show how invisible these intellectual legacies had become in their home countries and how incongruous and incompatible they suddenly appeared when forced to compete on an international stage. One irony of preservation history is that although preservation discourse became properly international as early as the mid-nineteenth century, many of its practices and values remained nationally bounded well into the twentieth century, in part because the profession of preservation is largely administered by national state institutions.[24]

Damming, Lifting, Flooding, Floating

The first scheme to salvage Abu Simbel was proposed by the French engineering firm of Coyne et Bellier in summer 1960: to preserve the temple in situ by building a rock-fill dam—in some ways a copy of the Aswan High Dam—in front of the temples.[25] This scheme would reintegrate the monuments into the desert using the same technologies that had radically transformed it. Coyne et Bellier were specialists in thin-shell concrete dams, but they left the design of the dam to French architect Albert Laprade, who sought to maintain what he called "the extraordinary harmony between the elements of this unique site."[26] Laprade devised an intricate choreography where visitors arrived by water at the level of the lake, descended along a sinuous scenic route to circumvent a shallow pool in front of the temples, and finally found themselves aligned with an axis that corresponded with the angle taken by the rising sun during a once-a-year illumination with the innermost shrine of the large temple.

Laprade felt no qualms about leaving a legible human gesture in the sand—so long as he deemed the gesture to be aesthetically continuous with the original setting. In this sense, he engaged in the French practice of "restoration" as it had been pioneered by Viollet-le-Duc and had continued to be followed, in spirit, well into twentieth-century France: that is, the act of "re-instating a monument in a condition of completeness which could never have existed at any given time."[27] This "condition of completeness" had long been the French answer to the



Opposite: Twenty-four temples were relocated to four oases along the Nile and five Western museums during Unesco's Campaign to Salvage the Temples of Nubia, 1960–1980. Diagram by Lucia Allais.

Left: Coyne et Bellier with Albert Laprade. "Dam" scheme to protect the temples of Abu Simbel, 1960. Plan and rendering.

question of integrity, and Laprade evoked it when he called the site a "timeless landscape." Yet completeness did not mean ideality. Having spent much of his career drawing and designing neo-orientalist buildings in an explicit rebellion against classicism, Laprade rejected circular geometry as "too majestic," favoring instead an elliptical gesture that, he argued, created "a jewel-case" around the temples, "fusing" his work "into the landscape." Found nature took the place of past architecture in this redefinition of restoration, as the new site was now described as having an "almost natural appearance."[28]

But the architectural legibility of this "dam" scheme only concealed its weakness as an engineering proposal. As Unesco's chief archaeologist soon realized, "unfortunately, dams are made to go across streams not to protect something on the side of the stream."[29] A pumping station, located far from view behind the temples, would perform most of the work of preservation. Financing this pumping would have been prohibitively expensive. Faced with the prospect of indefinite maintenance, within a few months Unesco decided to pursue an alternative plan that Piero Gazzola—the same Italian preservationist mentioned at the beginning of this article—had proposed during Unesco's first fact-finding mission in October 1959.[30]

Gazzola was the first to propose "liberating" the temples of Abu Simbel from the mountain in order to "preserve the integrity of the temple by lifting it whole."[31] Influenced by an Italian tradition of painting restoration that distinguished between the *epiderme* and the *struttura* (the skin and the structure) of any work of art, Gazzola transformed the monolithic site into a building with a façade, a structure, and a site—or, as he put it, "the rock, the block and the box."[32] This preliminary sketch was further developed and officially presented to Unesco in October 1960: the temples would be severed from the cliff with three extended cuts into the rock, then encased in a gigantic concrete box and lifted about sixty meters, one centimeter at a time, by a grid of hydraulic jacks. This, too, implied a certain notion of integrity, similar to the one theorized by Cesare Brandi in his 1963 *Theory of Restoration*: the idea of preserving "the material wholeness of the work of art." The difference between Italian wholeness and French completeness was that while Laprade had posited a timeless environment, Brandi identified a precise moment in time: restoration occurred at "the methodological moment in which the work of art is appreciated in its material form."[33] Restoration was a reenactment of aesthetic value.

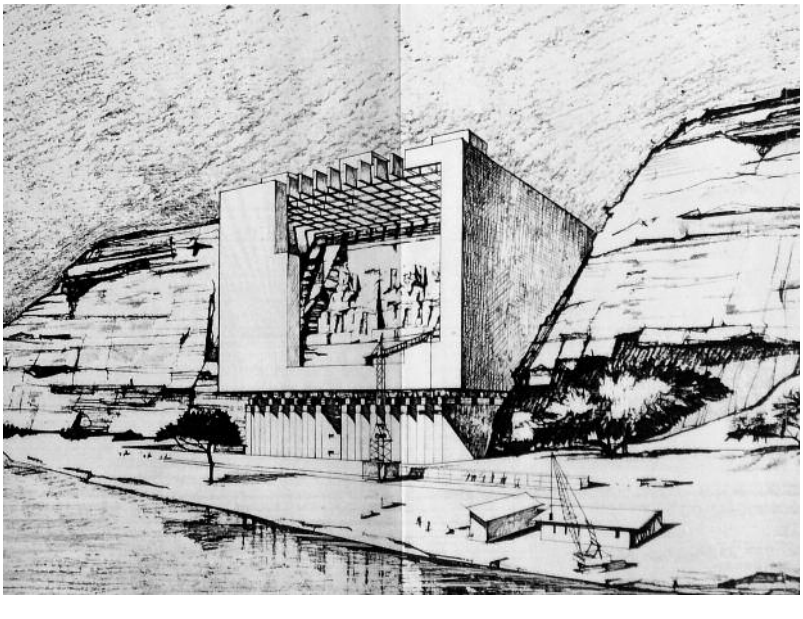
One advantage of the theory of reenactment is that it allows for modern technology to be exposed in preservation. Riccardo Morandi, the structural engineer who joined the Italian team, often contributed to preservation pro-

Piero Gazzola with Riccardo Morandi, Gustavo Colonetti, and Italconsult. Italian "lifting" scheme to relocate the temples a hundred meters vertically. Pencil drawing by Riccardo Morandi.

jects by designing modern structures for ancient monuments. For example, in his entry to the 1965 competition for the Tower of Pisa he proposed to build a scaffold around the tower, giving the medieval monument a visible modern crutch against which to lean. Similarly, Morandi proposed to reenact in Nubia the "wholeness" of Abu Simbel through the design of the concrete box to be poured around the temples to secure them during lifting. The box was designed in collaboration with the mathematician Gustavo Colonnetti so that the elasticity of the concrete—its ability to absorb mechanical forces—would be continuous with that of the sandstone.[34] The elegance of the scheme lay in this momentary replacement of integrity with a calculated continuity between old and new materials. After all, this was the first scheme to propose a violation of integrity, a cut along three planes that would effectively sever the relationships between the temples and their site.

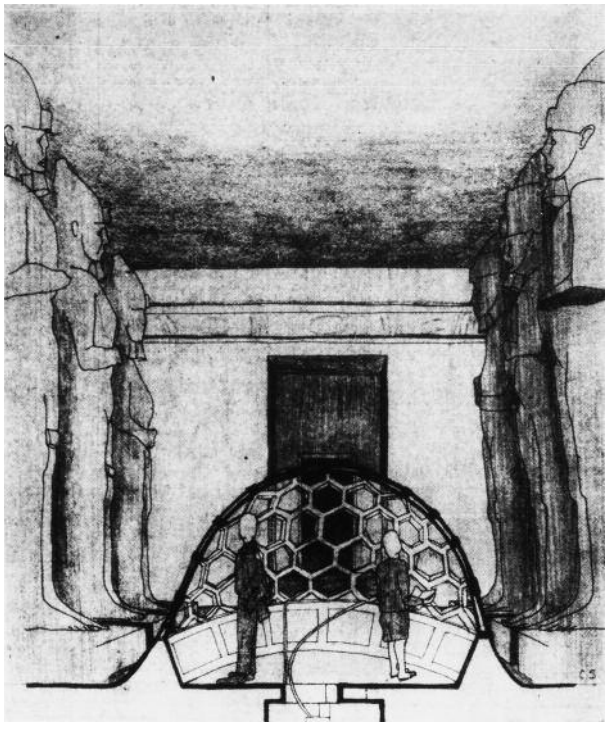
One cannot overstate the technological heroism that permeated both the Italian team's rhetoric and the publicity that Unesco derived from this scheme. Every component was experimental. Morandi drew dramatic sketches of the salvage that were circulated worldwide for fund-raising. But these renderings did surprisingly little to dramatize the process of lifting. In the most famous view, the hydraulic jacks are barely visible—the concrete box dwarfs them. Enframing the seated figures, the box appears to be a brutalist monument in its own right, similar to Morandi's own concrete architecture. The only other perspective view Morandi submitted does not even show the temples, instead featuring the "tunnels" dug below the monument and occupied, in the architectural drawing, by two Nubian children. Undoubtedly they were drawn to demonstrate the monumental scale of the hydraulic jacks, but, as the only human beings in the whole scheme, they also serve an allegorical purpose of inhabiting "the cut" between the old and the new. Despite—or perhaps because of—the utopian resonances of these drawings, the scheme never attracted enough funds for Unesco to begin construction. By the middle of 1963, as the flooding grew near and fund-raising stalled, other nations volunteered their schemes.[35]

Of these, the most fantastic was a British proposal to leave the temples underwater. Based on the assumption that it was not water per se that would



disintegrate the temples but the chemical composition of Nile water in particular, the British team proposed to build a concrete dam not to *retain* water but to *purify* it. The scheme was designed by the young structural engineer Ted Happold, later to become one of the best-known members of the postwar engineering avant-garde, then still working for Ove Arup. Architects Jane Drew and Max Fry, who had worked with Le Corbusier and Pierre Jeanneret in Chandigarh, joined him. They proposed to delegate the work of maintaining the integrity of the site to one architectural element: a single, thin, reinforced concrete membrane. In their plan, the membrane appears as a rigid curtain, folded for stability.[36] The ingenuity of this solution lay in the thinness of the interface between object, subject, and site. Instead of the monument, it was the *visitor* who was encased: in bubbles, tunnels, and shafts that left undisturbed the harmonious continuum of elements. Visitors were shown casually strolling the underwater realm in their leisure suits—as if the ordinary city dweller or museumgoer had been transposed into this nomadic underwater environment.

Here, too, the scheme can be seen as a critical take on a long-standing (in this case, British) tradition of conservation—although much had changed since John Ruskin famously defined restoration in negative terms as "the most total destruction which a building can suffer."[37] Ruskin preferred that buildings be left to the forces of "universal decay," and his follower William Morris later founded Britain's first Preservation Society, devoted to ensuring that British monuments would be subjected only to minimal intervention, leaving visible only traces of what Ruskin had called "parasitical sublimity." In the twentieth century, this Morrisian tradition developed into a careful technical practice, one that maintained old buildings through a combination of materials science and picturesque planning. The British scheme at Abu Simbel echoes this tradition and its contradictions by apparently combining willful ruination, minimal intervention, high-tech chemistry, and picturesque enjoyment. Certainly the circulation route around this fantastical underwater scheme was episodic: from a restaurant at the top of the dam, visitors proceeded down an elevator to access three levels of curved pathways where circular windows and bubbles of glass offered glimpses of the colossi, or a worm's-eye view of the inner shrine.



Architecturally, this scheme was the most eclectic. The folded surface recalls

contemporaneous structural experiments at Ove Arup, the bubbles of glass echo the plug-in sensibilities of the British neo-avant-garde, while the nautical windows are a throwback to the first machine age. This eclecticism might be explained by the fact that the original idea had been proposed not by an architect but by a film producer, William MacQuitty, who sold the scheme as "a cool modern miracle at a relatively low cost." An avid scuba diver with a theory of underwater perception, MacQuitty intended his visitor to swim around the monuments. He also added an environmentalist's prediction: that nuclear power would replace hydroelectricity, that the dam would become obsolete, the reservoir drained, and the temples rediscovered.[38] Perhaps it goes without saying that although this underwater scheme captured the public imagination, it was far more radical than anything Unesco was willing to imagine. In her memoir, Jane Drew commented that Egypt would probably have refused any plan proposed by Britain anyway.[39]

In contrast to the British scheme's notoriety, a second French scheme was officially proposed in April 1963, but it never gained publicity. Designed by the French military engineer Albert Caquot, the proposal was to "float" the temples to a new site in synchronicity with the rising of the Nile. Caquot had invented various aeronautical devices for military and civilian uses, and the circular steel floaters he designed for Abu Simbel were inspired by shipbuilding technology, "the only procedure being practically used today to lift vertically, and transfer horizontally, any mass weighing thousands of tons."[40] Modern hydraulics were therefore combined with an appeal to the ancient Egyptian tradition of Nile water transport. But the elegance of this solution did not compensate for its incompletion or for the awkwardness of some of its architectural choices—such as cutting the temples in a triangular shape to maintain their horizontality. The question of water infiltration during lifting was also left unaddressed. In fact, this scheme was proposed as a last-minute attempt at a "wet" scheme before "dry" thinking was brought to its dreaded logical conclusion.

Not one of these four schemes was implemented. Instead, the temples were cut into blocks—7,047 blocks sawed by hand, numbered, removed to a storage area, and then reconstituted on a hill about 200 meters behind the original site.

Hand—Sand—Lens

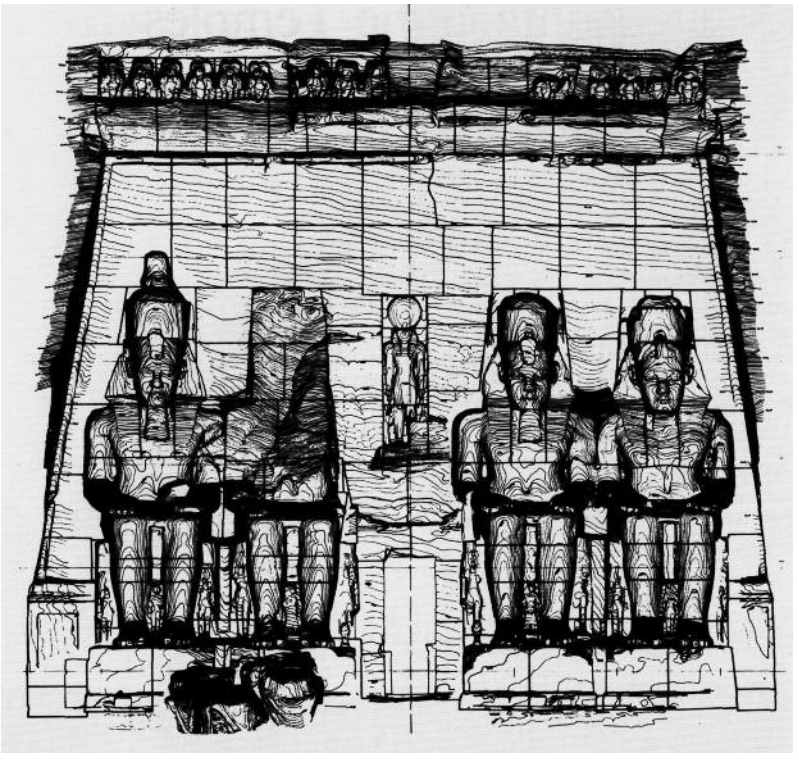
The "cutting" scheme was developed by the Swedish geological engineering firm Vattenbyggnadsbyrån (VBB), which became involved in the project in September 1962 at the request of the Egyptian government. VBB's scheme was three times cheaper than the other proposals and was adopted in extremis

William MacQuitty with Jane Drew and Maxwell Fry, and Edmund Happold. "Underwater" scheme to purify the water around the temples. Sketch of the large temple's shrine interior by Drew and Fry Architects.

in June 1963 after it became evident that cutting was the only alternative to flooding and after the United States secretly offered a guarantee of funding.[41] The cutting was violently opposed by some of Unesco's own experts. As late as May 1963, a panel of experts wrote that they were "immensely repulsed at the thought of recommending a project that leads to the cutting or fragmenting of these precious monuments in any way possible, even if they can be reconstituted in another site."[42] Yet by June this fragmentation was approved, and by October publicized as a victory. In a complete reversal of the rhetoric of integrity that had been building momentum around the French, Italian, and British schemes, a political logic ultimately seemed to take precedence over any coherent preservation theory.

Yet we should be careful not to equate the failure of the four architectural schemes with a failure of integrity. Instead we should ask what definition of integrity was validated by the salvage method that eventually unfolded. Integrity stands as an accepted norm today, and nobody—not preservationists, not heritage historians, and least of all Unesco—dares to speak of the Abu Simbel temples as if they had not remained authentically themselves.[43] I would like to suggest that a theory of integrity lies latent in the Swedish cutting scheme, a theory found not in the doctrinal pronouncements of conservationists but in the salvage apparatus they were forced to use—the technologies for surveying, cutting, moving, and reconstructing the temples, which formed a complicated assemblage of humans and nonhumans, ancient materials and modern machines.

We can begin to locate this assemblage in the film version of *The World Saves Abu Simbel*, an hour-long publicity film produced by Unesco in 1967.[44] Set against a free-jazz sound track, the film documents the cutting process with frightening bluntness. Unlike most films in this genre, it does not open with a dramatization of the drowning of Nubia. Instead, the title sequence



Right: Vattenbyggnadsbyrån (VBB). "Cutting" scheme to relocate the temples, 1963. Elevation of large temple façade.

Opposite: Hubert Frank, dir. *The World Saves Abu Simbel*, 1968. Frame enlargements.

shows a rapid montage of men at work, cutting away at the face of Rameses against the rhythms of an upbeat xylophone. Men at work dominate the rest of the documentary. Despite the many machines in play, the human hand emerges as the most salient architectural technology. The film features an overwhelming display of human labor. The camera cuts to different workers performing individual parts of this vast enterprise, zooming in on their hands as if to certify the monument's tactility. In the voice-over commentary, much is made of the fact that the most delicate parts of the temples were sawed continuously through the night, so changes in temperature would not affect the size of the seams. Everywhere the human hand is seen, we also see a lot of sand. Any cutting is followed by the pouring of sand. Any hole is filled with sand. Any block is stored on a bed of sand. Sand is ubiquitous, and this alliance between the hand, the sand, and the camera lens produces more than just a propagandistic montage. These three technologies also bind together the three aspects of the salvage scheme that made it politically realizable: calculability, aggregation, and spectacularization.

Calculability

By *calculability*, I mean the potential of an architectural project to be incorporated into a project of economic development.[45] From the point of view of calculability, cutting had one advantage over all other salvage methods: it required a lot of labor, which could be paid in local currency—Egyptian pounds—and local currency was what the United States wanted to spend in Egypt. The United States held large amounts of Egyptian pounds, derived from the sale to Egypt of agricultural surpluses such as wheat and cotton under the terms of the "Food for Peace" program established in 1955. The idea that one country gives its excess food to feed the hungry of another might seem simple, almost philanthropic, but this "gift" was twice mediated by economic transactions: the U.S. government bought wheat from its farmers, then sold that wheat to the Egyptian government, earning local purchasing power. The "aid" consisted in the discount that made an American commodity affordable to a poorer nation, but this affordability came with obligations for both sides: a crucial component of the program's "peaceful" ideology was that funds should be spent on projects of national economic development agreed upon by both governments. This kind of aid, known to Congress as Public Law (PL) 480 funds, allowed the U.S. government to transform

surplus production at home into increased political power abroad.[46] But as diplomatic tensions with Nasser rose in the early 1960s, negotiations over how to spend PL 480 funds lagged. By the time Unesco's fund-raising campaign for Abu Simbel got underway, U.S.-owned Egyptian pounds were accumulating in Cairo, unspent, under threat of devaluation. A cultural project like the salvage seemed an expedient and, in the words of one cultural attaché, "non-controversial" way to expend these funds.[47] Thus the Egyptian food-for-peace program became, for a few years in the mid-1960s, a program of monuments-for-peace.

The choice of the cutting scheme was thus a direct result of American foreign policy: cutting is labor-intensive, and laborers could be paid in Egyptian pounds, whereas more-experimental technologies (such as the hydraulic jacks, floaters, and pumping stations of the schemes proposed earlier) had to be imported with convertible dollars. Against the unmistakably Western character of the other schemes, the image of so many Egyptian laborers in direct contact with the monuments of Nubia suggested cutting was a native building method. Yet even as local labor appeared to lend cultural authenticity to architecture, the real function of thousands of Egyptian laborers was to grant the monuments their international value, to act as a technological bridge between two countries at a time when their diplomatic ties were strained.

The particular economic structure of the Food for Peace program gave American officials the power to dictate not only *how* but also *whether* the salvage of Abu Simbel would be performed. When John F. Kennedy committed to covering about 30 percent of the total cost of the salvage (in accordance with a long-standing policy that the United States contribute no more than a third of all expenses in any given international project), calculability became the deciding factor in determining whether the temples would be saved at all.[48]

Cutting was not just cheaper. Calculability also introduced a qualitative logic, by subjecting architecture to a procedure where incommensurable values—such as agricultural commodities and temples—were somehow made commensurate. However quantifiable engineering and its technologies were at one end of the equation, an intangible value had to emerge at the other end. The importance of this intangible, "surplus" cultural value for all the nations involved can be detected in the way the Egyptian government tabulated the "International Fund to Salvage Abu Simbel." Whereas Unesco tallied the financial contributions of every nation in dollars in a single chart, Egypt's official records devoted two columns to the fund, one to pounds, the other to dollars, separating out the few nations who were able to make local contributions.[49] Those few nations comprised the United States and the four other Western nations that eventually received a small temple as a "grant-in-return."

Despite the complicated financial procedure that rendered these buildings exportable, the temples were conceived essentially as architectural gifts, surplus objects bearing a properly cultural value. A gifting rhetoric also permeated Unesco's language, where temples were described informally as "bonus" (incentives for nations to contribute to the campaign) and legally as "surplus" (not unique enough to warrant remaining on national territory).[50]

How then did the logic of calculability map onto the architecture of the temples? Clearly the concept of integrity that emerged from the cutting scheme had less to do with the temples as architectural objects and more with their ability to absorb and redistribute economic value. The financial feasibility of the salvage provoked a complete rethinking of the notion of objecthood, not only for Abu Simbel but for the other Nubian temples. For instance, American officials originally hoped to devote American aid exclusively to rescuing the island of Philae—the so-called Pearl of Egypt, whose eclectic collection of temples the officials felt could become a symbol of America's own cultural pluralism.[51] But a different link between architecture and finance was realized instead. First, Egypt used the American aid to dismantle as many temples as possible, storing them on the island of Elephantine. This act of mass disaggregation had the double effect of distributing funds across the twenty-four temples and disseminating architectural matter across the desert. Then, Egypt encouraged individual nations to pay for individual reconstructions and required that any nation hoping to receive the "gift" of a temple contribute to the salvage of one or both of the "big temples," Philae and Abu Simbel. Thus, from a financial perspective, the Unesco campaign was an elaborate procedure for investing value in two sites (the big temples) in order to redistribute that value and create a cultural "surplus" in several others (at each Nubian oasis, and in foreign museums). The specificity of Nubia's pharaonic architecture—the fact that individual temples could be disaggregated from the desert and reconstituted in heterogeneous museum environments—made possible this translation from money to matter.

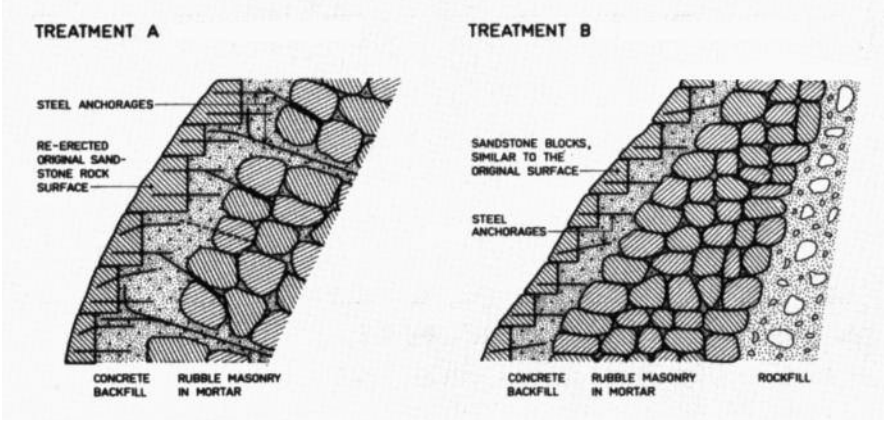
As the value of Abu Simbel became calculable and its stone divisible, geological engineering became the project's dominant technoscientific discourse. VBB was a large engineering firm with a portfolio of international projects, including a new electric power plant built at Aswan in 1959 to harness the power that would be created by the new dam.[52] As managing director Nils Berg later recalled, the firm became involved in the Abu Simbel project through its direct contacts with the Egyptian government. In 1961 an Egyptian official casually mentioned to Berg that a geological consultant was needed for the Italian lifting scheme.[53] VBB was hired as a subcontractor to Italconsult, an Italian consortium that was heading the lifting project. Only

after it engineered the three "cuts" required for the lifting was VBB asked to develop an alternate scheme where the "cut" became systematic. In other words, calculability travels in expert networks—in this case, through the hydrogeological specialization of Swedish engineers—that are not necessarily bound by the rise and fall of diplomatic alliances. More to the point, VBB's changed position from supporting role to center stage in the salvage operation indexes a shift of attention provoked by the cutting scheme: from the architecture of the temples to their aggregability.

Aggregation

As specialists in soil mechanics, VBB redefined "integrity" in geological terms, replacing an architectural notion based on the legibility of a "block" with a geological notion based on the mechanics of sand, soil, and stone. This process began when VBB was still acting as a consultant to the Italian scheme. Describing the monuments scientifically as an aggregate system, the firm's engineers drew detailed elevations of the fissures in the temple rock, shaded the plan along the likely fault lines that ran across the temples, and constructed a Plexiglas model that abstracted these fault lines as diagonal planes.[54] Next the firm developed plans for cutting, which mandated different saws and a sliding scale of stone sizes. Here, too, prescription arose directly from description: the same nomenclature used to illustrate the results of stress tests became the design tool for a temple reconstruction that would occur in three, sometimes four, layers of aggregate. Eventually, once the cutting was adopted, no less than three surface "treatments" were prescribed to replicate different types of rock finish. The cliff would be roughly cut into large blocks, whereas sculptures and reliefs would be cut with fine saws and in pieces calibrated so that seams would least disturb their figuration.

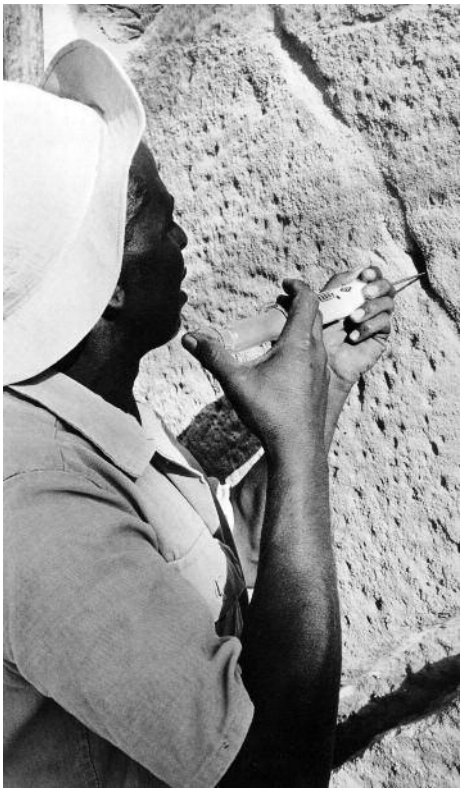
That the integrity of the temples lay in their nature as a stone aggregate is perhaps best evidenced in VBB's final report, which concludes with the triumphant claim that "Every piece of stone sculptured in the rock more than 3,200 years ago still does exist!"[55] What this phrase cleverly avoids mentioning is that the stone was not originally in pieces. Most of VBB's energies were devoted to precisely designing, then filling, the space *between* the stones, at both the architectural and molecular level. First, a new building material—a mortar made of Nubian sand—had to be invented and added to join blocks together after they were reassembled. Second, copious volumes of epoxy were injected into the temples to "consolidate" the outer sculptural layer that soon came to be called the "façade" of the temples. If mortar joined together



the stone *blocks* to dissimulate the cuts, epoxy performed a much more pervasive role, intervening in the space between stone *granules* to ensure that the stone did not crumble during cutting, moving, and reassembly. Epoxy was injected three times: before the temples were cut, as the blocks were fastened to their moving anchors, and after the entire complex was reassembled. VBB was familiar with epoxy as a waterproofing agent in hydrological works, but here they retooled the substance so that it worked as a glue. In structural terms, the epoxy glue, not the "pieces of stone," performed the "integrity" of the temples.

But soil mechanics is a science fundamentally unconcerned with outward form. Geologists and soil engineers deal with a certain amount of aggregate and ask how tightly this aggregate is packed, in order to compute the amount of pressure that any pile, including a sculpted one, can withstand. From this molecular perspective, the claim that "every piece of stone" of Abu Simbel remained is indeed true; what was dramatically transformed was the voids between the pieces.

VBB's geological analysis redefined the concept of material integrity at an infinitely small scale. As a result, the sand of the Nubian Desert became the smallest element in a family of related building materials. VBB made extensive use of sand: as a building material, as protective coating, for shock absorption, to buffer direct contact between metal and stone, and to prevent the collapse of cavities old and new. Every time a stone was severed from the monoliths, it was placed in direct contact with matter drawn from around the site. By inscribing monument movement in an intricate system of sand displacement, VBB maintained Abu Simbel's image as a monolith while cutting it into increasingly smaller pieces. In the hands of the Swedish engineers, the sandstone of Nubia was a chameleonic architectural substance: sometimes a solid mass susceptible to stereometry, sometimes a loose substance that could be molded, and, throughout the salvage, a building technology akin to the crane and the saw.



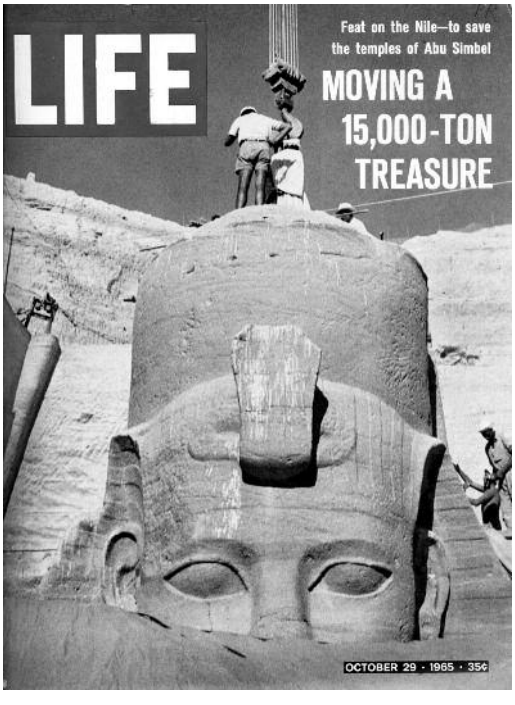
By focusing on sand, VBB also created a direct connection with archaeology. Most memorably, the temple fronts were covered with a gigantic pile of sand to minimize damage to the sculpted figures, creating an image of a half-buried Rameses that became for a time iconic of the entire salvage, even appearing on the cover of *Life* magazine.[56] A clever engineering solution, the pile of sand was intended to shield the temples from rocks that might detach and fall while

Opposite: Vattenbyggnadsbyrån (VBB). "Façade treatments" to reconstruct the façade of the large temple of Abu Simbel. Details of aggregate layers.

Left: Large temple of Abu Simbel. Detail of epoxy being injected into the temple fronts to consolidate them before or after cutting, ca. 1965. Photograph by Georg Gerster.

the "mountain" above them was dismantled. The new plateau created by the pile also served as an elevated ground for the cranes to reach the rocks above, and, eventually, as a scaffolding for the archaeologists cutting the temple faces. This piling technique was inspired by ancient Egyptian artists and engravers, who filled temples with sand in order to work on the upper portions of their walls, then gradually removed the sand in layers as they worked their way down the surfaces.[57] Yet there was more to this striking image of a buried Rameses than the revival of an archaic building technique. The sand cover also rehearsed the *modern* act of archaeological discovery. After its rediscovery under a mountain of sand by a Swiss explorer in 1813, Abu Simbel spent much of the nineteenth century being repeatedly dug in and out of sand (including by such famous tourists as Gustave Flaubert and Maxime du Camp). This history of repeated uncovering had even earned the temples a place above the couch in the office of Sigmund Freud, where a David Roberts rendering of the temples was hung to trigger a patient's psycho-archaeological introspection. By capitalizing on this history of excavation, the Swedish scheme highlighted the modern nature of the temples as *discovered*, rather than their ancient nature as *sculpted*.

The aesthetic potential of this archaeo-geological viewpoint was not lost on VBB, especially on its in-house architects, Sune Lindström and Alf Bydén. In January 1962—while still working as consultants to the Italian scheme and entrusted only with the "reconstruction of the site"—they made proposals that took striking formal liberties with the design of the site. The architects offered three options to Unesco. At one extreme, they proposed to "preserve the setting and appearance of the temples as closely as possible" by reconstructing the rock exactly as in the original site. At the other extreme, they proposed to mold the rock around the temples into a "characteristic silhouette in an otherwise featureless landscape," thereby creating a "new work." The mountain around the seated figures would be sculpted into a chain of reinforced concrete splines faced with sandstone and dramatically extruded to a point of absolute thinness. VBB justified this elastic geometry by talking of "a synthesis of the original conditions and the new" and a need to create "a monument with fresh values, still in the spirit of the ancient Egyptians" but "embodying present day technology and philosophy."[58] The horizontal plane of approach in front of the temples would also be "shaped," and Lindström and Bydén again offered several options: geometricize the optimal angles for arrival by boat; or create a



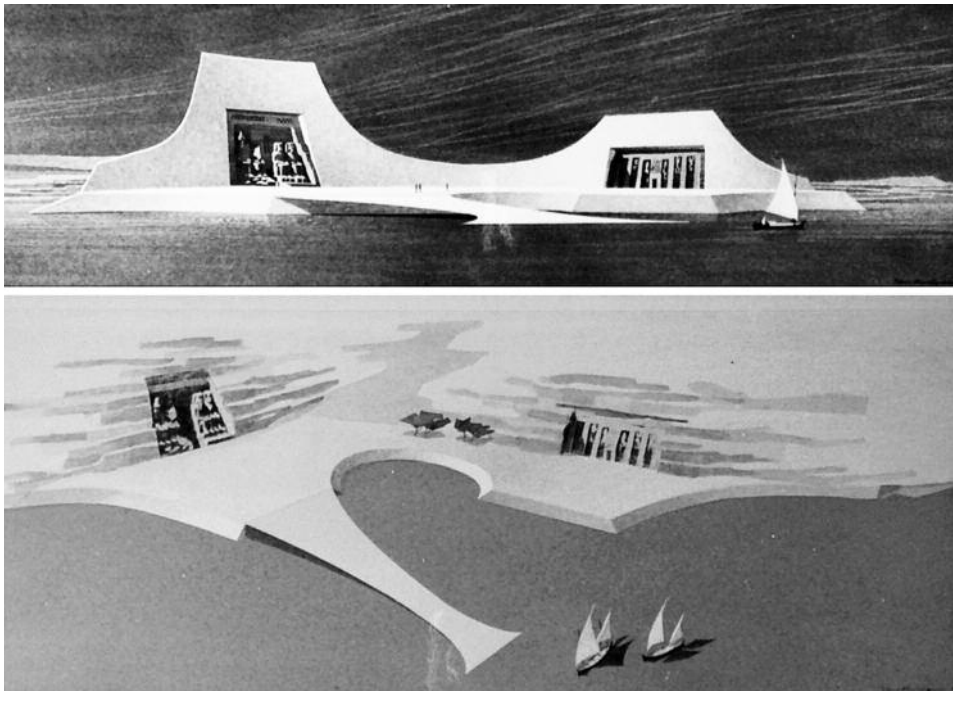
Right: Large temple of Abu Simbel. Detail of sculpted front covered in sand to protect it from falling rocks. Cover of *Life*, October 29, 1965.

Opposite: Sune Lindström, Alf Bydén, and Roger Waters (for Vattenbyggnadsbyrån [VBB]). Proposals for sculpting the surroundings of the Abu Simbel temples, 1962. Renderings.

floating pier that could rise and recede with the tide. Both options, however, expanded the futuristic idiom of the elevations, using convex geometry to redesign the new site.

The architects of VBB were motivated by the same impulse as Laprade, who wanted to inscribe a new elliptical dam in the desert. Within a decade, Lindström and Bydén produced iconic buildings in the Middle East that took up Laprade's orientalizing legacy and brought it to new heights of postmodern regionalism—one famous example being their water towers for Kuwait City. Already in their 1962 proposal for the Abu Simbel site this direction can be glimpsed in their unsolicited design for a "floating hotel" shaped as an oval peninsula. Striped so as to disappear into the desert, the hotel would dock itself to the floating platform in front of the temples, offering tourists direct access from the water to the shrine.

Unesco reacted to these bold sculptural proposals by promptly instituting a rule that "architectural shapes should be avoided" in the reconstruction of the site.[59] Evidently VBB had mistaken building for site and vice versa. In the final instance, the rock face and water approach were made to look exactly like the original site. Yet a closer look at a section through the temples as built shows that, even without sculptural bravura, the plastic "synthesis" VBB advocated ultimately prevailed in the architectonic logic of the new whole. But rather than being outwardly expressed, this synthesis was turned inward. A massive concrete dome was built to support the artificial hill in back of the seated figures—a dome whose futuristic interior, worthy of James Bond, is usually excluded from the definition of the monument as such. In fact, this domed space is but the largest void created by a thin layer of reinforced concrete that lines the whole monumental complex. Concrete is the main shaping agent of the work: it supports the interior walls of the shrine, provides a backing for the reconstructed sculptural fronts, and supports a new rear façade with a gentle pyramidal form.[60] From an architectural standpoint, the Swedish scheme transformed the temples into a new kind of building.



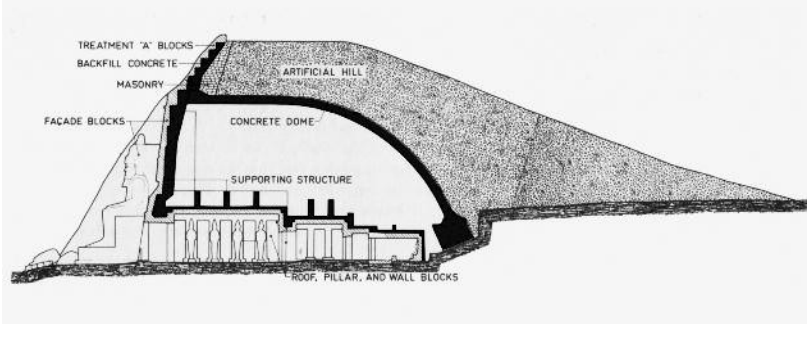
Once a shrine with a single, thick façade, each temple became a façade system wrapped around two inhabitable spaces: a shrine and a dome. Yet, because the scheme was only ever described in geological terms, no such architectural overview was ever provided. Instead, modern architectural technologies were hidden from view, a gesture that brings us to the last aspect of the hand-sand-lens alliance: visibility and its instrument, the eye.

Spectacularization

There is a distinct continuity between the reconceptualization of the Abu Simbel temples as geological and financial aggregates and the spectacularization of their movement. This awkward word, *spectacularization*, helps to thematize a pattern whereby every aspect of the temples' movement was not only visually recorded but enhanced, annotated, presented and re-presented, narrated, edited, and dramatized in order to be showcased across the world. The intense effort to publicize an event taking place deep in the desert of Nubia confirms Guy Debord's 1967 pronouncement that "modern society has invested the surface of every continent—even where the material basis of economic exploitation is still lacking—by spectacular means."[61] In the case of Abu Simbel, *spectacularization* also means something more specific: the incorporation of optical technologies into the apparatus that certified and reproduced the integrity of the temples. In order to be saved, the temples had to be validated by experts, technically described by engineers, and popularized to a worldwide public. A crucial component of each of these tasks was performed not by strictly architectural technologies but by media of visualization than focused on imaging elements of the temples up close (and in pieces), rather than depicting the monumental complex as a whole. In other words, new modes of seeing came to the rescue of the monument as well.

Throughout the salvage, camera crews recorded the movement of every stone. The ever-present lens attested to the integrity of the work by showing that salvage workers were behaving ethically and that architectural matter was being treated authentically. Filming the movement of stones became standard practice in Nubian salvage work (photographs of the most recent temple reassemblies show blocks being lifted while surmounted by an engineer *and* a cameraman).[62] But aside from documenting the work, the filming process also contributed its own mechanics of cutting and editing to the staging of the salvage. In *The World Saves Abu Simbel*, optical montage (of film) and physical assemblage (of blocks) are conjoined so that cutting between film shots helps to hide the fundamental violence of cutting the stone into blocks.

Another type of mechanical vision became instrumental at the other end of the process, where reconstruction was aided by the use of a sophisticated



Right: Vattenbyggnadsbyrån (VBB). Section for the reconstruction of the large temple of Abu Simbel, showing reinforced concrete dome and façade backing, 1965.

Opposite: Robert Génot, dir. *Nubie 64*, 1968. Frame enlargements showing photogrammetric apparatus.

apparatus of photogrammetry. The French National Geographic Institute originally used photogrammetry to record the temples as a set of topographic elevations in 1959. Indeed the word *salvage* originally designated *only* this process of recording temples before they disappeared—when it was assumed that the Abu Simbel temples would inevitably be flooded and all that could be "preserved" was the three-dimensional information of photogrammetry.[63] Once the temple movement began, however, these topographic drawings became guarantors of originality, used to check the reconstructed profile. The institute also produced a film, *Nubie 64* (Nubia '64), that showcases photogrammetric technology as a modern wonder, pausing on every component of the machinery as if it were the product of an evolution in visual accuracy.[64] One particular sequence proceeds through a chain of specialized viewing agents: beginning with archaeologists hunched over Egyptian reliefs, continuing with geographers standing upright pointing their cameras at the temples, and culminating with a prolonged sequence about a "machine operator" who is prosthetically attached to a stereometric vision machine through eyes, hands, and feet. The film decomposes the act of seeing into discreet actions, so that the eye is focused on individual lines and points rather than on the monument as a whole. Conversely, each point on the visible surface of the temples is subjected to intense and close-up examination by the stereometric camera. The eye and the body of the machine operator perform a reenactment of these reference points, and the task of reconstituting the visual whole is then delegated to a "plotting machine."

These optical technologies reconstructed a new image for the temples of Abu Simbel in the same way experimental building technologies reconstituted a new architecture for the temples. Just as cutting and injecting were two ways to intervene directly into the fabric of the stone, so filming and photogrammetry allowed a mechanical reenactment of the visual experience of the monument even after it could no longer be apprehended as an aesthetic whole. In this manner the perceiving eye was subjected to a logic of disassembly, placing the temples in what Walter Benjamin called the "age of mechanical reproducibility." Indeed, the pairing of architectural and visual technologies at Abu Simbel recalls Benjamin's famous analogy between scalpel and camera—the idea that "the camera operator is like a surgeon, in that he intervenes mechanically in the assemblage of the work of art."[65] Taking Benjamin's cue, we can further specify the hand-sand-lens alliance by imagining that technologies that "penetrated" the stone and those that "scanned" its surface were paired off: the eye and the blade,

the syringe and the camera, the block of stone and the reel of film.

The significance of this pairing of visual and surgical technologies is that it was systematically used to perform a delicate balancing act between truthfully rendering the features of Egyptian architecture and giving them a newly modern aesthetic meaning. Consider the three characteristics of Egyptian art that were theorized by art historians in the twentieth century: first, its nature as an art form "conceived for strictly near viewing," to use Alois Riegl's words; second, the shallowness of Egyptian representation, its strict adherence to the rules of what Adolf Hildebrand called "relief space"; and third, the representation of body parts as disconnected components, what Erwin Panofsky called its "mechanical" rather than "organic" arrangement of parts.[66] Each of these formal properties was enhanced and manipulated in the cutting performance. Because Egyptian art is an art with no built-in foreshortening, the documentarians could film pieces of the temple in extreme close-up without exposing optical distortions. Because the three salvage techniques—cutting, injecting, and photogrammetry—required an extreme proximity of the eye to the sculpted form, they reenacted Riegl's near view. Similarly, because the planarity of Egyptian art bears the memory of the block from which the art was carved, seeing blocks with elements of relief being carried away from the site was not shocking—they looked like the unfinished Egyptian sculptures that were known from museum collections throughout the world. Finally, because Egyptian artists proportioned each part of the body independently—rather than modifying their shape and size in relation to the whole body—parts of the temple could lay exposed in amputated form (as happened with the legs famously photographed truncated from Rameses's torso) without provoking in the viewer repulsion at human dismemberment, producing instead a mild longing for the other limbs, each of which retained their own idealized proportions. Perhaps the most important part of the cutting apparatus to aid in the visual reconstruction of the temples as a properly Egyptian whole was the cutting grid itself. Again Panofsky provides a clue in his description of "the Egyptian theory of proportions" as a theory that made no difference between viewing and producing. Panofsky emphasized that Egyptian artists worked "not by prospectus (view) but in geometric plan," using a finely meshed grid to subdivide the block of stone and lay out the position of each part.[67] For Panofsky, the use of this grid meant that Egyptian art was an art of reconstruction not imitation. In light of this, the imposition of a cutting grid onto the temple fronts of Abu Simbel appears no longer as a gesture of deconstruction but of re-construction, a reenactment of the grid that must have been a part of the temples' original making.

Whereas the original artists of Abu Simbel needed only a grid to convey a

Temples of Abu Simbel. Truncated legs surrounded by cranes and bulldozers, ca. 1966. Photograph by Günter R. Reitz.

normative proportional system to the ancient Egyptian beholder, in reconstituting Abu Simbel as a modern work of art the cutting grid was complemented by a proliferation of media. All the views, renderings, drawings, films, and photographs that were produced around the salvage give the modern viewer a simultaneous and separate rendering of multiple projections, narrativizing them over time into a story of "preservation." Consider, for instance, the most dramatic sequence of *The World Saves Abu Simbel*, when the "face" of Rameses is severed from the body. The camera begins with a wide shot from below (the modern monumentalizing view par excellence) that shows the block of one of Rameses's heads, the crane lifting it, and the men around it. As soon as the face is detached and begins to rise, the camera zooms in on the hands of the archaeologists who take hold of the block to keep it from rotating off axis, inserting their fingers into a hole that has been bored in the face. After this moment of tactility, the camera adopts and maintains the normal view—an axis perpendicular to the surface—following the face of Rameses in a full-frontal close-up as it is carried to its new site and cutting to a countershot of what Rameses sees as the voice-over narrates: "King Rameses gives one last majestic look" toward his former abode.

This careful reimaging of the formal qualities of the temples was integral to their material salvage. To modernize the temples was to integrate contemporary spectacular values into Egyptian form, and "integrity" was redefined as an alignment, across millennia, of ancient modes of construction with modern modes of perception. More than an added propaganda dimension, this intense effort of spectacularization was aimed at granting the temples their eventual status as international objects—a status that was far from guaranteed.

"Rameses Had Himself Sculpted in Quadriplicate"

From the moment its survival was in doubt, the legitimacy of the Abu Simbel complex as a suitable international monument became a matter of contention, especially in the American and international press. Because PL 480 funds were "public" and had to be appropriated by Congress, the temples became the object of a sustained debate, from 1960 to 1963, both in Congress and in a constant stream of op-eds, feature articles, firsthand reports, travelogues, radio specials, and museum exhibitions. These debates amount to a debased form of criticism, derivative of more sophisticated discourses. (In one notorious episode, a presiding congressman reacted to an archaeologist's presentation by "asking the prize question, who is Abu Simbel?" His mistake was quickly rectified: "Mr. Chairman, Abu Simbel refers to a geographical location.")[68] But in this discourse, and especially in the words of detractors who argued *against* any salvage, we find a cohesive new definition of preservation as a practice of mediation.

The first argument put forth against saving the temples was that the sculpted figures were crudely made, that they were not particularly fine examples of Egyptian architecture—not unique enough to be saved. "Look at the thick knees," one critic wrote.[69] This critique echoed the judgment of many architectural historians, among them Giedion, who visited Abu Simbel in 1958 and found the temples' sculptures too small to be monumental and too gigantic to be refined. For Giedion, and a whole generation of architects fascinated with pyramids as "space-emanating objects," the Abu Simbel temples were merely "colossal"—and therefore symptoms of decline and mannerism in Egyptian art.[70] A related argument developed by art critics was that by drawing attention to Abu Simbel as a "unique work of art" Unesco had encouraged the confusion of spectacle and art. The temples were valuable only as part of a unique sequence of sun, sand, and Nile, and Unesco used film and photography to artificially inflate this scenographic value, effectively fabricating a tourist attraction in advance. Certainly the involvement of André Malraux rendered the entire enterprise suspect in some scholarly circles. In 1959 Malraux had taken part in Unesco's inaugural ceremony, comparing Nubia in a famous speech to his "museum without walls," where sculpture is given new life by photographic reproduction.[71] According to Malraux, ancient art could be reinvigorated by modern media, which granted even secondary works a "spurious" (though positive) "modernism" by blowing up their details to colossal scale.[72] It was through Malraux's rhetoric that many readers of Unesco's literature first heard of the temples of Abu Simbel, and when Malraux visited the temples in 1966 he was photographed staring down one of Rameses's delaminated faces, undoubtedly testing this "spuri-

ousness" firsthand. But more traditional art scholars found spuriousness not in the temples themselves but in the motivation of popularizers such as Malraux and Unesco, who tried to replace their exacting value judgments (that Abu Simbel was a secondary work) with the seductive value of modern spectacle (that Abu Simbel was photogenic).

Yet the blindness of American cultural officials to these critiques only fed the controversy, especially abroad. For many British Egyptologists, America cared less about Egyptian monumentality than about its own, and the entire project was simply a way for the United States to achieve a colossal presence in the world. The European intelligentsia, well-versed in arguments made by art historians such as Wilhelm Wörringer about the "Americanist immoderation" of Egyptian art, came to consider Abu Simbel cynically as a fitting emblem of American arrogance.[73] Even in the United States, some skeptical prehistorians and politicians were quick to point out that Rameses was not a particularly important pharaoh but a megalomaniac, a "fanatical builder" obsessed with reproducing himself.[74] To preserve Abu Simbel meant to preserve a monument to a despot, and a not particularly good one. Rameses II's only historical achievement was the creation of an arts industry for the mass production of effigies, reliefs, and statues.[75] Ironically, increased quantity led to a decline in quality, and this repetition rendered any sculpture Rameses commissioned less valuable, including those at Abu Simbel. So at worst the temples of Abu Simbel were emblems of a hollow, narcissistic, imperial power. At best they were simply a site where, as one journalist put it, "Rameses foresightedly had himself sculpted in quadriplicate [*sic*]."[76]

Crude execution, cheap spectacle, questionable politics, showy repetition—none of these attacks put a stop to the salvage effort because they merely pointed out that the temples of Abu Simbel were already mass-produced objects. In a sense the lack of originality in their making only facilitated their ability to be reproduced as a modern monument. In light of these debates, the salvage of Abu Simbel appears as a solution not to the problem of preserving existing cultural value but to the problem of creating a new one. Ultimately the temples of Abu Simbel were saved not *in spite* of the fact that they were cut into blocks but *because* they could be cut into blocks while becoming more or less authentic modern versions of themselves.

History at Two Speeds: Preservation as a Medium

What does this episode tell us about the expansion of preservation's domain in the 1960s, pithily expressed by Gazzola as "we have gone from punctual to global protection"?[77] To reiterate, the phrase is usually interpreted to mean that monuments in this period became smaller and more vernacular, while

the protective boundary around them became larger. But in the case of Abu Simbel, a monolith literally injected with boundaries, as protective norms and forms became increasingly finer, more "punctual," the monument emerged as more "global." Also clear is the fact that, although the project offered preservationists unprecedented access to political power, the architectural object itself eventually appeared to take on more power than any of the human actors, none of whom could claim to control the project entirely. While the story is undoubtedly "heroic," we cannot speak, with Powers, of a narrative of local empowerment. Yet, to say, as Choay might, that Abu Simbel is therefore a narcissistic mirage, a symptom of human passivity in the face of tourist machinery, is not enough. If we are to take seriously the claim that preservation's "expansion" diffuses architectural values to the point that they mediate social bonds, for good and for ill, then preservation must be retheorized as a historically variable, space-making practice.

Paying closer attention to technologies of preservation alerts us to the fact that the debate about agency and passivity that has animated preservation circles since the 1960s is really a debate about the emergence of a new architectural medium. With this phrase I do not mean only that preservationists experimented with new materials, such as sand and epoxy, or new crafts, such as cutting and reassembling. Nor do I mean that architectural heritage is a kind of machine for producing images, akin to a camera or a television, although this argument has been convincingly made.[78] Rather, I mean *medium* in the expanded sense: a sociotechnical apparatus whose emergence Raymond Williams recounted in 1972 when he talked about the reification, ongoing since the nineteenth century, of the "properties of the medium" and the "material consciousness" of artistic makers into a set of social, aesthetic, and often commercial institutions.[79]

The apparatus I have been describing—the hand-sand-lens alliance, its associated financing and engineering structures, and all the networks that made them possible—placed architecture under a logic of media. The logic of moving monuments was allied with the logic of moving images. The logic of storing stones was allied with the logic of storing photographs. And the logic of repeated hand-cutting was allied with the logic of image reproduction. Throughout these repetitions and translations, the object of preservation was fundamentally transformed. In this sense preservation functioned as a mode of cultural production and communication that incorporated the characteristics of another mode of production, architecture. Could we not, then, see architectural preservation as a medium whose content is another medium, namely architecture?

This proposition seems particularly promising for dealing with the historical

asynchronies of the history of preservation—the fact that preservation is always a theory of history at two speeds. "Advances" in preservation technology subject architecture to a double axis of progress, and preservationists take seriously the task of mediating between these two tempos. Sometimes they achieve perfect alignment; sometimes syncopation is all they can manage. But even when two speeds of history align, something is always rendered invisible—as in films where the spokes of a rotating wheel appear to us stand still because the frame rate of the camera has conspired with the rhythm of the wheel's revolution to fool the eye. For the historian trying to make sense of this mediating act, consulting media theorists may prove helpful. Consider, for instance, a central axiom of Marshall McLuhan's theory of media: that when new media emerge they manifest themselves in new environments that are invisible, serving instead to "make visible the preceding environment" that is their content.[80] Without endorsing McLuhan's teleological history, we can learn from his insight, especially in his spatialized "environmental" version of the argument, wherein historical causality seems less important than spatial replacement. What should ultimately strike us about the architectural technologies that were used to dismantle Abu Simbel is how unremarkable, how "invisible," they were. Cranes, jackhammers, steel bars, flatbed trucks, bulldozers, and thousands of workers—these same machines appeared in development and modernization projects across the world. Their use to cut apart an ancient temple may shock us today, but they were effectively invisible to the international citizen of the 1960s. In contrast, the features of Ramesside architecture, the "content," with its camera-friendly gigantism, were rendered newly visible and subjected to intense aesthetic judgment.

One way to approach the history of preservation, then, is to look for places where technologies have aged, rendering visible mediations that were previously invisible. At Abu Simbel, counterintuitively, the "cuts" have withstood the test of time and remain more or less invisible, thanks in part to a maintenance crew that regularly fills them with mortar. As for the very technology that once threatened the temple's existence—electricity—it was soon used to incorporate the temples into established touristic norms. Within a decade the temples were plugged into the power grid that was brought up from Aswan, and lit up with an extensive system of light and sound. The technology that has aged most is the injected epoxy. Once invisible, it has over time darkened the overall appearance of the temple front by changing the way light penetrates its internal structure. Stone derives its usual color from the light absorption in the space around each particle, but in a phenomenon appropriately called "increase in specular, or mirror-like, reflection," the epoxy has saturated the aggregate, impeding the ability of internal stone granules to

absorb light and making the external granules act increasingly as minuscule mirrors.[81] Thus, the Rameses we see today is a hyperreflective Rameses—a stiffer, puffier version of his old self.

This material connection between saturation and visuality should help to dispel the idealist misconception that preservation today always operates through nested frames of historicity, or through two images of architecture, one contemporary and framing, the other historic and enframed. The "environmental" turn in preservation practices is also sometimes mistaken to mean that spatial scale now corresponds to historical distance—that the more modern the viewer, the better his or her perspective. Chemical saturation connotes a different idea: that images appear and disappear through subtle changes in the material composition between the adjoining spaces and surfaces that make up architecture. Rather than considering the imageability of architecture as an external product of its material presence, we can think saturation to mean that images produced through preservation cannot help but return to, and reside in, the architecture itself, and we can imagine that a semimagical, perhaps electrochemical process causes a constant toggling between all of these accumulated images, depending upon the discursive environment that comes to pass. Lastly, the notion of saturation hints that a historical tipping point has been reached: if architectural preservation has long been a social and political medium, around the 1960s it became a medium tout court.

Notes

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1. Reyner Banham to Thomas Stauffer, 20 January 1965, cited in Daniel Bluestone, "Academics in Tennis Shoes," *JSAH* 58, no. 3 (September 1999): 300–307.

2. Kevin D. Murphy recounts this episode in "The Villa Savoye and the Modernist Historic Monument," *JSAH* 61, no. 1 (March 2002): 68–89. Panayotis Tournikiotis addresses Giedion's role in "Le Corbusier, Giedion, and the Villa Savoye," *Future Anterior* 4, no. 4 (Winter 2007): 1–11.

3. A proposal for "world heritage" was made at the White House Conference on International Cooperation convened (28 November to 1 December 1965) by a group of participants named Sub-Committee on Natural Resources Conservation and Development. Issues of preservation were also the focus of the Sub-Committee on Architecture, chaired by Scully. The issue landed on the front of the conference report, according to which "the spread of international culture has reactivated interest and pride in local cultural heritages." White House Conference on International Cooperation (WHCIC), *National Citizens Commission: Report of the Committee on Culture and Intellectual Exchange* (Washington, DC: WHCIC, 1965).

4. Alan Powers, "The Heroic Period of Conservation," in *The Heroic Period of Conservation*, ed. Elain Harwood and Alan Powers (London: Twentieth Century Society, 2004), 7–18. Powers explicitly borrows the phrase from Alison Smithson and Peter Smithson, "The Heroic Period of Modern Architecture 1917–1937," *Architectural Design* 35 (December 1965), 590–639. The Smithsons' article eventually became a book, Alison Smithson, *The Heroic Period of Architecture* (New York: Rizzoli, 1985).

5. One notable counterproject to the uncritical accumulation of national histories has been undertaken by the journal *Future Anterior*, which has devoted several issues to regional surveys of preservation histories and practices and has begun to account for the circulation of texts and values beyond national borders and the relationship of local movements to various international networks. See, for example, on the convergence of counterculture and heritage in Scandinavia, Thordis Arrhenius, "Preservation and Protest: Counterculture and Heritage in 1970s Sweden," *Future Anterior* 7, no. 2 (Winter 2010): 106–123.

6. Willibald Sauerländer, "Erweiterung des Denkmalbegriffs?" *Deutsche Kunst und Denkmalpflege* 33 (1975): 117–130; my translation. Sauerländer uses *Erweiterung* to mean "extension" and *Vermittlung* to mean "mediation."

7. Piero Gazzola, "L'evoluzione del concetto del restauro prima e dopo la carta di Venezia," *Bollettino del Centro Internazionale di Studi di Architettura Andrea Palladio* 20 (1978): 243; my translation.

8. Francoise Choay, *L'allégorie du patrimoine* (Paris: Seuil, 1992), 198; my translation.

9. Rem Koolhaas, "Preservation Is Overtaking Us," *Future Anterior* 1, no. 2 (2004): 1–3.

10. The phrase "local population" was used during the salvage to denote the Nubian villagers who cohabitated with the temples. To say that these villagers were disempowered

would be an understatement. Not only did they have no say over the monuments' fate, they also had little control over their own and were eventually relocated by the Egyptian and Sudanese governments to distant new towns completely removed from the Nile. For a brief account of this forced relocation in relation to the history of architectural mobility, see Lucia Allais, "Global Agoraphobia," in *Global Design History*, ed. Glenn Adamson, Giorgio Riello, and Sarah Teasley (London: Routledge, 2011), 174–179.

11. The Smithsons eulogized the Euston Arch in Alison Smithson and Peter Smithson, *The Euston Arch and the Growth of the London, Midland and Scottish Railway* (London: Thames and Hudson, 1968).

12. In his own eulogy for the first machine age, Banham explained that "architecture moving with its times will always seem 'difficult'" because "modern architecture . . . represents an ancient craft trying to keep pace with a technological situation." Reyner Banham, *The Age of the Masters* (London: The Architectural Press, 1962), 3.

13. The dam's designer, Karl Tarzhegi, is known as the founder of soil mechanics. He eventually resigned from the international oversight in protest against the Soviet implementation of his design. For a political history of the dam, see John Waterbury, *Hydropolitics of the Nile Valley* (Syracuse, NY: Syracuse University Press, 1979). For its devastating environmental effects, see Timothy Mitchell, "Para-Sites of Capitalism," in *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley and Los Angeles: University of California Press, 2002), 19–122. For an in-depth investigation of the relationship between economics, technology, and politics in the realization of the dam, see Ahma Shokr, "Hydropolitics, Economy, and the Aswan High Dam in Mid-Century Egypt," *Arab Studies Journal* 17, no. 1 (Spring 2009): 10–31.

14. "Nasser's Pyramid" was the expression used by Herbert Addison in *Sun and Shadow at Aswan* (London: Chapman and Hall, 1959), 122. The "Egyptian monopolization of the Nile" is from Morris Llewellyn Cooke, *Nasser's Aswan High Dam: Panacea or Politics?* (Washington, DC: Public Affairs Institute, 1956), 19. In "The Technological Aspects of Decision Making," *World Politics*, October 1980, 57, Robert W. Rycrift and Joseph Szyliowicz conclude that within Egypt, "other hydrological approaches were actively discouraged," and "only the High Dam gained access to the political agenda" of the Nasser regime. John Waterbury summarized that "whether a triumph of Soviet-Egyptian solidarity or a triumph of the Egyptian people, the diplomatic history of the dam dictated that it be a triumph of some sort," and the dam was "consecrated [as a] massive monument, built by the Soviets." Waterbury, 114–115.

15. United Arab Republic, *Assouan: La ville des nouvelles réalisations plus grandioses que les obélisques et les pyramides* (Cairo: Administration de l'information, 1961), 18; my translation. Reporter Max Freedman, on returning from a visit to the construction site in 1963, noted, "everywhere one hears about the contrast between the dam and the Pyramids." Max Freedman, "The Aswan Dam," *Washington Post*, 23 February 1963.

16. United Arab Republic, *Assouan*.

17. "Save the Treasures of Nubia," *Unesco Courier*, special issue, February 1960, cover; and "Victory in Nubia," *Unesco Courier*, December 1964, cover.

18. *Pravda*, *Asuan—simvol sovetsko-arabsko-fi druzhby* [Aswan, symbol of Egyptian-Soviet friendship] (Moscow: Politicheskaialit-ry, 1964); Unesco and Christiane Desroches-Noblecourt and Georg Gerster, *The World Saves Abu Simbel* (Vienna and Berlin: Koska, 1968). During a 2004 discussion of "cosmopolitics," Latour accused Ulrich Beck of "believing in

a Unesco koine, a sociological Esperanto." Bruno Latour, "Whose Cosmos, Which Cosmopolitics? Comments on the Peace Terms of Ulrich Beck," *Common Knowledge* 10, no. 3 (2004): 450–462.

19. Vattenbyggnadsbyrån, *The Salvage of the Abu Simbel Temples: Concluding Report* (Cairo: Arab Republic of Egypt Ministry of Culture, 1971), 5.

20. See Lucia Allais, "The Design of the Nubian Desert: Monuments, Mobility, and the Space of Global Culture," in Aggregate, *Governing by Design: Architecture, Economy and Politics in the 20th Century* (Pittsburgh: University of Pittsburgh Press, 2012), 179–215. "The Egyptian People" were in fact 120,000 Nubian villagers whose homes disappeared under the new lake; "the Archaeologist" was composed of more than sixty archaeological teams from all over the world; and "the Contractor" was a multinational consortium created to allow foreign developers to operate in Egypt. As for Unesco, while the engineering report emphasizes the universalism of the organization's appeal to "nations and people all over the world," mapping the number of responses to this appeal on a geographical dial reveals the dominance of Western experts.

21. Gazzola, "L'evoluzione del concetto del restauro prima e dopo la carta di Venezia," 243.

22. The American environmental thinker Holmes Rolston argues in *Conserving Natural Values* (New York: Columbia University Press, 1994) that integrity became "the law of the land" in American nature conservation after 1949. Catherine Howett gives an overview of how the term was enlarged from ecological to cultural usage in "Integrity as a Value in Cultural Landscape Preservation," in *Preserving Cultural Landscapes in America*, ed. Arnold R. Alanen and Robert Z. Melnick (Baltimore: Johns Hopkins University Press, 2000), 187–207. In architecture the term was popularized by the *Venice Charter*, whose article 14 mandates that "sites of monuments must be the object of special care in order to safeguard their integrity." ICOMOS, *International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter 1964)* (Paris: ICOMOS, 1964), http://www.international.icomos.org/charters/venice_e.pdf. By 1968 Unesco had arrived at a definition, which first appeared in a document relating to the last of the Nubian temple complexes to be saved, the island of Philae: "By the phrase *integrity of monuments* is meant the preservation of the original geographic, architectural and cultural position and ambiance of the monument including not only the position of various buildings vis-à-vis each other, but also their original relationship with surrounding physiographic and cultural features in the area." Unesco Executive Committee, *International Campaign to Save the Monuments of Nubia*, UNESCO/NUBIA/15 (Paris: UNESCO, 1968).

23. The aesthetic concepts of "integration" and "reintegration" gained popularity during the postwar European experience with fragments and lacunae, as an alternative to "reconstruction," which had held negative connotations since the nineteenth century. Both terms describe a modern intervention, but whereas *reconstruction* implies that the new imitates the old, *reintegration* is focused on creating an aesthetic "whole" that is visually apprehensible, while not allowing confusion between old and new. The authoritative text, which connects the practice to a Kantian aesthetic vision, is Giovanni Carbonara, *Re-integrazione dell'immagine* (Rome: Bulzoni, 1976). Some earlier texts, which are representative of the way the term became popular during the heated international debates about painting restoration in the 1950s, are collected in the "Reintegration of Losses" section of Nicholas S. Price, M. Kirby Talley Jr., and Alessandra M. Vaccaro, eds., *Historical and Philosophical Issues in the Conservation of*

Cultural Heritage (Los Angeles: Getty Conservation Institute, 1996), 326–363.

24. The "scrape/anti-scrape" debates of the nineteenth century were international. For an overview, see Price, Talley, and Vaccaro. For more on the early internationalism of preservationists at the turn of the twentieth century, see Melanie Hall, ed., *Towards World Heritage* (London: Ashgate, 2011).

25. Coyne et Bellier were assigned the specific task of designing a "rock-fill dam" by a Unesco commission that also considered three other options: "lifting the temples and surrounding rocks above the levels of the surrounding waters; construction of a concrete dam in front of each temple; construction of a vaulted concrete dam, protecting the temples from up close." The commission was specific about the dimensions of the dam, mandating that it should be "approximately 700 meters wide, in such a manner that the rock mounds in which the temples have been hewn are respected in their totality" and that "the distance between the façade of the great temple and the crest of the dam would be around 300 meters." Unesco, "Annexe 1: Rapport," UNESCO/55 EX/7, in *Réunion d'experts internationaux pour la sauvegarde des sites et monuments de Nubie menacés, Le Caire, 1er–11 octobre 1959*, SN/R.EXP/SR (Paris: UNESCO, 1959), p. 6, in Unesco Archives.

26. Albert Laprade, "Esthétique," in Bureau d'études André Coyne et Jean Bellier, *Rapport*, vol. 1 of *Avant-projet des ouvrages de protection des temples d'Abou Simbel* (Paris: Coyne et Bellier, 1960), 3; my translation.

27. Viollet-le-Duc, "On Restoration," trans. Charles Wethered (London: Sampson, Low, Marttson, Low and Sparce, 1875), 9.

28. Laprade, "Esthétique," 3.

29. John Otis Brew to Ralph T. Barney, 20 December 1962, in box 10, Papers of John Otis Brew, Harvard University Archives. Brew, known as "Jo," was the chairman of the Unesco committee tasked with evaluating the schemes.

30. This meeting included experts in archaeology, engineering, and architecture, as well as representatives from Egypt's cultural ministry and its newly created High Dam Authority, who traveled down the Nile by boat to visit each threatened temple. See Unesco, *Réunion d'experts internationaux*.

31. Pietro Gazzola, *Transfert des temples et autres monuments et ruines: Considérations de caractère architectural et archéologique*, UNESCO/SN/R.EXP/6 (Paris: UNESCO, 1959), p. 3, in Unesco Archives; my translation.

32. Italconsult, *Saving the Temples of Abu Simbel* (Rome: Italconsult, November 1960), in International Center for the Study of the Preservation and Restoration of Cultural Property (ICCROM) Library, Rome.

33. Cesare Brandi, "The Concept of Restoration," in *A Theory of Restoration*, trans. Cynthia Rockwell (Rome: Nardini/Istituto Centrale per il Restauro, 2005), 52. "Restoration," he wrote, "should aim to re-establish the potential oneness of the work of art."

34. Gustavo Colonnetti, "Il progetto italiano per il salvataggio dei templi di Abu-Simbel," *Problemi attuali di scienza e di cultura* 49 (1961): 3–12.

35. In December 1962 the Unesco general conference decided not to make contributions to the Abu Simbel salvage compulsory for all of its member states and set a deadline of March 31, 1963 for receiving "voluntary contributions" for the Italian scheme, planning a pledging conference for March 20 of the same year. In the meantime the price for the lifting was

evaluated at $60 million. By the time the deadline passed, only $7.5 million of hard currency had been raised.

36. Edmund Happold, "The Scheme Explained," in *The Architects' Journal* 137 (20 March 1963): 610–612.

37. John Ruskin, "The Lamp of Memory," in *The Seven Lamps of Architecture* (New York: Farrar, Straus and Giroux, 1988), 178.

38. William MacQuitty, *A Life to Remember* (London: Quartet, 1991), 341. In "New Scheme to Save Abu Simbel Temples," *Architects' Journal*, 20 March 1963, 610, MacQuitty is cited as predicting that "[w]ithin the next hundred years the high dam itself will be outdated by atomic power bringing new methods of irrigation and electricity. And if that happened the Nile water would return to its original level, and the temples of Abu Simbel could be restored to their present state." See also William MacQuitty, "The Author's Scheme," in *Abu Simbel* (New York: Putnam's, 1965), 182.

39. Jane Drew, unpub. memoir, in Collections of the Canadian Center for Architecture, Montreal.

40. Albert Caquot, *Les temples d'Abou Simbel: Avant-projet de leur déplacement complet* (Paris: Simecsol, 1963), 8, in Unesco Archives.

41. A "Preliminary Report on the Project of Dismantling, Moving and Re-erecting the Abu Simbel Temples" was produced by VBB for the Egyptian government in September 1962 and marked "confidential"; it is cited in "Report on Visit of Wendell E. Johnson to Egypt Re Abu Simbel Temples," April 1962, in box 8, Papers of John Otis Brew, Harvard University Archives. Johnson was chief of the engineering division of the U.S. Army Corps of Engineers. He had been sent by the U.S. State Department to Egypt on a "fact-finding mission" and wrote approvingly of "the dismantling and re-erection" plan of VBB, calling it "entirely feasible" and recommending it "based on engineering considerations, and subject to appropriate considerations of the archaeological, geological, financing and policy aspects." In April 1963, after refusing to pledge funds for the Italian scheme, the U.S. Department of State communicated a message to the Egyptian government offering "the cooperation of the US toward the development of an alternative that would be technically and financially feasible." Max McCullough to Jo Brew, 1 May 1963, in box 10, Papers of John Otis Brew, Harvard University Archives.

42. "Report of the Panel of Experts to Consider the Technical and Archaeological Aspects of Two New Schemes for Saving the Abu Simbel Temples," 7–9 May 1963, UNESCO/65/EX/Addendum, in Unesco Archives. The "two new schemes" were the cutting scheme and Caquot's "floating" proposal.

43. One scheme that would have deliberately "reproduced the temples completely as replicas," by using photogrammetric information and casting reinforced concrete copies of the temple-fronts, is discussed in 1960 in correspondence from Jo Brew to Edward White, an engineer at Spencer, White and Prentis and a member of the advisory board to the Department of State. Box 10, Papers of John Otis Brew, Harvard University Archives. The existence, and dismissal, of this proposal for "replicating" the temples in another material confirms that preserving the original stone, even in pieces, was perceived by engineers as the necessary condition for the temples' authenticity.

44. *The World Saves Abu Simbel/Abou Simbel: Journal d'une résurrection* (Paris: UNESCO, 1967).

45. I borrow the term from Timothy Mitchell, who borrowed it from Georg Simmel's 1903 essay *the Metropolis and Mental Life*. See Timothy Mitchell, "The Character of Calculability," in *Rule of Experts*, 80–118.

46. On how PL 480 tied domestic politics and foreign affairs, see Lisa Martin, *Democratic Commitments: Legislatures and International Cooperation* (Princeton, NJ: Princeton University Press, 2000). For a history of the Food for Peace program, see Harriet Friedmann, "The Political Economy of Food: The Rise and Fall of the Postwar International Food Order," *The American Journal of Sociology* 88 Suppl. (1982): S251.

47. See "Statement by John A. Wilson," in *Mutual Security Act of 1960: Hearings before the Committee on Foreign Relations*, United States Senate, 86th Cong., 2nd sess. (Washington, DC: U.S. Government Printing Office, 1960), 576.

48. John F. Kennedy to the President of the Senate and the Speaker of the House, 6 April 1961; reprinted as Press Release PR(61)5, 7 April 1961, in box 10, Papers of John Otis Brew, Harvard University Archives. The funds ($12 million) were originally devoted to the temples at Philae, but the United States eventually agreed to have this amount transferred to Abu Simbel, which was further upstream and therefore a more urgent priority. The one-third proportional requirement remained, however, making possible only a project of roughly $36 million. The cutting project was priced at $32 million and eventually cost $42 million, of which $21.47 million was provided by an "international fund," of which $12 Million in U.S. donations constituted 56 percent. Egypt provided the remaining half.

49. Unesco's final accounting is published in an appendix in *Temples and Tombs of Ancient Nubia*, ed. Torgny Säve-Söderbergh (London: Thames and Hudson; Paris: UNESCO, 1987). The Egyptian financial report was included in a book published by the Egyptian Ministry of Information as "Rameses Crowned by Modern Man," and marked as being printed "through the PL 480 Program." Tharwat 'Ukashah, *Insan al-'asr yuttawiju Ramsis* (Cairo: al-Hay'ah al-Misriyah al-'Amah lil-Ta'lif wa-al-Nashr, 1971).

50. For a more explicit theorization of the entire Unesco campaign as an example case of when a gift economy was applied to a new regime of cultural "surplus" invented by Unesco, see Allais, "The Design of the Nubian Desert," in *Governing by Design*.

51. Kennedy to the President of the Senate and the Speaker of the House, 6 April 1961.

52. The power plant is described by Walter Furuskog and Geoffrey Kennedy, "The Aswan Hydro-Electric Scheme" (Paper 6434), *Proceedings of the Institution of Civil Engineers* 17 (1960): 201. See also abstract no. 3514 of the *Institution of Electrical Engineers* (February 1961), where a note states, "For his part in the design of the project and the co-ordination of the engineering services, Mr. Kennedy was awarded the Order of Merit, First Class, by President Nasser." These texts constitute evidence that an American-Egyptian-Swedish working relationship existed as early as 1958. A useful reference on the international networks of geological science is Evan Schofer, "The Global Institutionalization of Geological Science, 1800 to 1990," in *American Sociological Review* 68, no. 5 (October 2003): 730–759.

53. "At a conference in Rome in 1961, I ran into an Egyptian minister whom I knew from the dam project. 'Do you want to be a consultant on the Abu Simbel project?' he asked. 'Certainly,' I told him." See "Europe's Top A-E Makes It on Work Underground and Abroad," *Engineering News Record*, 27 July 1972, 16–17.

54. Nils Hast, "A Study of the Internal Stress Distribution in the Abu Simbel Rock and

Temples: The Occurrence of Horizontal Rock Pressure. Preliminary Report (August 1962)" (Stockholm, Sweden: Haco Stress Measurement Laboratory, 1962), in ICCROM Library.

55. Vattenbyggnadsbyrån, "Conclusion," in *Salvage of the Abu Simbel Temples*, 215.

56. *Life* (29 October 1965). See also the associated photo-essay with photographs by Pierre Boulat, "The Rescue of Abu Simbel," *Life* (29 October 1965): 28–33.

57. Vattenbyggnadsbyrån, *Salvage of the Abu Simbel Temples*, 62–65.

58. Vattenbyggnadsbyrån, "Abu Simbel: Salvage of the Temples, Landscaping and General Layout" (January 1962), in ICCROM Library.

59. "Meeting of a Group of Experts on the Consolidation of the Façades and Interior of the Abu Simbel Temples and the Reconstitution of the Site: Report of the Group," 30 March 1962, 6–7, UNESCO Nubia/2 CE/8, in Unesco Archives.

60. See "The Role of Concrete in the Abu Simbel Project," *Concrete*, November 1971, 343–347.

61. Guy Debord, *The Society of the Spectacle* (1967), trans. Donald Nicholson-Smith (New York: Zone, 1994), 37.

62. See, for example, the re-erection of the Kiosk of Kertassi and the temple of Beit el Wali on the "new island of Kalabsha" in 2001 in Zahi Hawass, *The Island of Kalabsha* (Cairo: Supreme Council of Antiquities/American University in Cairo Press, 2004).

63. The earliest plans for this recording operation date from 1956, when Unesco's monuments committee (MonCom) suggested an expert mission be sent to Nubia. Unesco first established a presence in Nubia in 1958 with the Centre d'étude et de documentation sur l'ancienne Égypte (headed by Louvre Egyptologist Christiane Desroches-Noblecourt), which paired with the National Geographic Institute to publish surveys of each temple as early as 1958.

64. *Nubie 64: Quelques aspects de la coopération internationale a la sauvegarde des monuments de la Nubie égyptienne*, dir. Robert Génot (Paris: Institut géographique national, 1968).

65. Walter Benjamin, "The Work of Art in the Age of Technological Reproducibility," in *The Work of Art in the Age of Technological Reproducibility and Other Writings on Media*, ed. Michael Jennings, Brigid Doherty, and Thomas Levin, trans. Edmund Jephcott (Cambridge, MA: Harvard University Press, 2008).

66. "Anyone who carefully examines Egyptian images will recognize that they were conceived from strictly near viewing. With even the slightest movement beyond a near viewpoint, all modeling vanishes, and they become like flat mirages." Alois Riegl, *Historical Grammar of the Visual Arts* (1897–1898), trans. Jacqueline E. Jung (New York: Zone Books, 2004), 191. "Relief may be regarded as the animation of a surface. Likewise primitive sculpture may be easily looked upon as a result of surface drawings carved in to a block. Thus the ancient Egyptians carved crouching figures out of blocks of stone, maintaining in the process the original bounding surfaces of the stone." Adolf Hilderbrand, *The Problem of Form in Painting and Sculpture* (1893), trans. Max Meyer and Robert Morris-Ogden (New York: Stechert, 1907), 125. "The movements of the figures are not organic but mechanical, i.e. they consist of local changes in the positions of specific members, changes affecting neither the form nor the dimensions of the rest of the body." Erwin Panofsky, "The History of the Theory of Human Proportions as a Reflection of the History of Styles" (1921), in *Meaning in the Visual Arts* (Chicago: University of Chicago Press, 1955), 57.

67. Panofsky, "History of the Theory of Human Proportions," 60–62.

68. The exchange is reported in Drew Pearson, "Aid for Historic Treasures Denied," *Los Angeles Times*, 3 June 1964.

69. Emma Swan Hall, letter to the editor, *New York Times*, 28 April 1963, 10B. "Egyptologists I have talked with feel very strongly that there is no real reason to preserve it. . . . The sculptures are not only huge . . . they are crude. Look at the thick knees . . . . While Abu Simbel easily dazzles the tourist, . . . still one asks: What is priceless about it? What part of 'man's heritage' does it represent? Is it art?" See also Barbara Watz, "Just Browsing: Ramses' Monuments," *Chicago Tribune*, 12 July 1964, in which Watz not only asserts that the temples are "not one of the most beautiful in the world" but refuses to use the adjective *beautiful* to describe them at all.

70. Abu Simbel appears in Siegfried Giedion's *The Eternal Present* (New York: Pantheon Books, 1964) several times, most notably in an unfavorable comparison with the Sphinx of Giza, where Abu Simbel is an example of Ramesside colossal statuary that "never attained the mystic power that still emanates from the Sphinx despite its mutilated features" (73).

71. André Malraux, "Speech Delivered at the Launch of the International Campaign for the Salvage of the Monuments of Nubia, Unesco House, March 8, 1960," *Unesco Courier*, May 1960, 8. For more on Malraux's role, see Allais, "The Design of the Nubian Desert," in *Governing by Design*.

72. André Malraux, *Museum without Walls*, trans. Stuart Gilbert and Francis Price (New York: Doubleday, 1967), 160.

73. In 1928 Wörringer famously compared Egyptian architecture with the architecture of American grain silos. "I am referring to what we designate sociologically as Americanism. There is an immoderation to pre-civilization and an immoderation of over-civilization, an immoderation due to fullness of experience and an immoderation due to poverty of experience, and, even though it be from different causes, they are alike in their over-estimation of the colossal." Wilhelm Wörringer, *Egyptian Art*, trans. Bernard Rackham (London: Putnam, 1928), 46–48.

74. The *New York Times* even opined that "[i]f Rameses II were alive today he would probably be recognized as one of the world's most boring and dangerous characters, though he would have competition." "And Who Was Rameses II?" *New York Times*, 24 January 1960, E10.

75. See, for instance, British Egyptologist I.E.S Edwards, foreword to *Abu Simbel*, by MacQuitty, 9–11.

76. Jay Walz, "Cairo Seeks to Save Temples above Aswan," *New York Times*, 23 January 1960, 3.

77. Gazzola, "L'evoluzione del concetto del restauro prima e dopo la carta di Venezia," 243.

78. Peter Probst has written evocatively about heritage as an image-generating machine. Peter Probst, "An African Journey" *RES* 52 (Autumn 2007): 153–160.

79. Raymond Williams, "From Medium to Social Practice," in *Marxism and Literature* (1977; Oxford, UK: Oxford University Press, 1988), 158–164.

80. McLuhan's theory was that every medium's content is another medium and that this chain literally established the basic pattern for a technologically driven, progressive history of media. See Marshall McLuhan, "The Medium Is the Message," in *Understanding Media:*

The Extensions of Man (1964; Cambridge: MIT Press, 1999), 8. The environmental consequences of the argument are drawn out in Marshall McLuhan, "The Invisible Environment: The Future of an Erosion," *Perspecta* 11 (1967): 161–167.

81. "The darkening of the surface of a porous stone following treatment with an epoxy resin solution is an optical effect. The original, diffusely scattering, high surface roughness or high porosity surface is modified by the epoxy solution and the degree of specular, or mirror-like, reflection increases." William S. Ginell and Richard Coffman, "Epoxy Resin-Consolidated Stone: Appearance Change on Aging," *Studies in Conservation* 43, no. 4. (1998): 242. Abu Simbel was one of the earliest projects where epoxy was used to reinforce not the joints between stone blocks but the actual fabric of a monument. Epoxy has since become controversial. For retrospective histories of the use of the material, see Lal Gauri, "Efficiency of Epoxy Resins as Stone Preservatives," *Studies in Conservation*, May 1974, 100–101; P. Kotlík, P. Justa, and J. Zelinger, "The Application of Epoxy Resins for the Consolidation of Porous Stone," *Studies in Conservation*, May 1983, 75–79; and Nicholas L. Gianopulos, "Doubts about Epoxy Article," *APT Bulletin* 21, no. 1 (1989): 2–3. For two conflicting accounts of the post-darkening experience, see Stephen Marks, "Abu Simbel, Egypt: A Revealing Experience," *Transactions of the Society for the Conservation of Ancient Buildings* 17 (1992): 56–60; and Shawn Kholucy, "More Thoughts on Abu Simbel," *Transactions of the Society for the Conservation of Ancient Buildings* 17 (1992): 88.