The Bomb in the Museum: Nuclear Technology and the Human Element

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Abstract

This article examines the commemorative role played by museums of nuclear technology in the United States, particularly those supported by the government agency responsible for the nation's nuclear weapons and reactor programs, the Department of Energy. The management of public perceptions of America's nuclear history in these museums reflects national defence and security imperatives in the post 9/11 era. The legacy of American nuclearism is complex and contradictory, and presents a daunting challenge to curators in museums sanctioned by vested interests. The many beneficial civilian applications of nuclear technology have be balanced by the recognition of the dire destructiveness of nuclear weapons; the compulsion to celebrate American technological achievement has to be checked by the acknowledgement of the damage wrought by the military use of nuclear energy both at home and abroad. A comparison with the Hiroshima Peace Memorial Museum suggests that nuclear 'victory' is more problematic to exhibit than nuclear victimhood.

Key words: Nuclear museums, nuclear weapons, technology and culture

Exhibiting Nuclear Nationalism

It will never compete with the revered sites of the Civil War, but America's nuclear defence landscape has attracted increasing tourist attention in the years since the end of the Cold War. More and more restored and decontaminated facilities have become available for visiting and viewing, and provided with a material focus in the form of museums, visitor centres and outdoor exhibits.

Nuclear commemoration is by no means confined to the United States. But its burgeoning practice in a country that remains deeply committed to nuclear weapons development and production makes it the object of special critical interest. Significantly, its chief instrument has been the government agency responsible for the nation's nuclear weapons and reactor programs, the Department of Energy (DOE). Created in 1977 in response to the 1973 oil crisis and the priority placed on consolidating national energy policy, the DOE traces its origins back to the Manhattan Project that developed 'the bomb'. In that part of its web site allocated to its operational management, the Department asserts that it 'is proud of and feels a sense of responsibility for' preserving its nuclear heritage, as reflected in its 'Signature Facilities' which provide 'the essential core for successfully interpreting' the mission of the Project, which not only ended the Second World War and ushered in the Atomic Age, but provided the 'organizational model' for 'the remarkable achievements of American "big science"' in recent decades.[1]

Among these preserved properties are the original Ground Zero, the Trinity Site in New Mexico, the location of the first detonation of a nuclear device in mid-July 1945, three weeks before the destruction of Hiroshima and Nagasaki, and the Hanford 'B' Reactor in Washington State, the world's first plutonium producer. The DOE also hosts public exhibitions right across the country, from its permanent Manhattan Project exhibit at its Washington DC headquarters to the History Center at the Y-12 National Security Complex in Oak Ridge Tennessee, originally built to enrich uranium for the first atomic bombs and now dedicated to manufacturing and

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maintaining nuclear weapons components. While commemoration is hardly one of the Department's major activities, it clearly takes the role seriously.

Central to its avowed commitment 'to displaying and interpreting…its scientific and technical missions and accomplishments', the DOE has funding and managerial arrangements with five major nuclear museums.[2] These DOE-supported museums are located either on or close by its field sites and laboratories: New Mexico's Bradbury Science Museum in Los Alamos and the National Museum of Nuclear Science and History in Albuquerque, the American Museum of Science and Energy in Oak Ridge, the National Atomic Testing Museum in Las Vegas sixty miles south of the Nevada National Security Site (formerly the Nevada Test Site), and the Columbia River Museum of Nuclear Science and Technology in Richland Washington, near the decommissioned Hanford nuclear production complex. Through these museums, the DOE controls much of what the public sees and learns of America's nuclear history as enacted on both home and foreign soil and thus shapes perceptions of, and attitudes to, its ongoing legacy.

Given their official connections — and the fact that they are generously sponsored by nuclear defence contractors — it might be reasonably proposed that these museums are not exactly disinterested, and that the preservation and cultivation of America's nuclear heritage is as bound up with the present and the future as it is about the past. Commemoration has entailed a degree of proselytization and the careful management of public apprehension of the political, environmental and economic costs of the national commitment to nuclear arms (Gusterson, 2004: 24). It has also involved the continuing sanitization of the most controversial chapter of US nuclear history, the atomic devastation of Hiroshima and Nagasaki. American sensitivities about the bombings were starkly revealed by the bitter controversy that eventually scuttled the proposed *Enola Gay* commemorative exhibition at the Smithsonian National Air and Space Museum in Washington DC in 1995. What finally killed off that event was that it was widely seen to be 'unAmerican': an unpalatable perception of an exhibit mounted by a nationally sanctioned and funded museum (Kohn 1996: 162, 165). Whether August 1945 remains as hotly contested an historical moment as it was back in 1995 is hard to assess. Suffice to say, the gleaming, restored *Enola Gay* now sits in a hangar in a Smithsonian annex by Dulles Airport in suburban Virginia, alongside the space shuttle *Enterprise* and other examples of American technological achievement, identified by a panel which obtusely notes how it 'found its niche on the other side of the globe'.

Visitors to today's American nuclear museums hoping for the kind of sharp interpretive critique that was the original ambition of the 1995 *Enola Gay* exhibition will depart disappointed. With the exception of the Richland facility, I have been visiting American nuclear museums for several years, most recently in July 2013. They are not all the same, being influenced by the idiosyncratic character of their locations; and the National Museum of Nuclear Science and History in Albuquerque, in particular, tries hard to convey neutrality. Yet they all remain, as the science historian and curator Arthur Molella (2003: 211) has written of the Oak Ridge museum, 'captives to time and place, to their origins and to local cultures steeped in the crisis of war and, subsequently, potent Cold War ideologies'. Molella was writing a decade ago, not long after 9/11/2001; it may be that the nuclear museums have become even more pragmatically defensive in the years since, affected by prevailing fears of nuclear weapons falling into the hands of malign states and terrorist groups or even individuals. The end of the Cold War created a 'legitimisation crisis' for U.S. defence institutions (Taylor, 1997: 119). But the attacks on the World Trade Center and the Pentagon ended any complacency. New national security considerations in the wake of 9/11 have hastened the trend toward the 'nuclear nationalism' identified by Joseph Masco (2006a: 3), which has impacted on the presentation and commemoration of American nuclear history in museums and monuments. The so-called 'war on terror', Masco (2006b: 104) has argued, has turned them into 'highly politicized spaces, ideologically charged in how they engage the past, present, and future'.

The museums do not shy away from their intimate institutional relationship with prevailing national defence policy and practice. At both the American History of Science and Energy Museum in Oak Ridge and the Bradbury Science Museum in Los Alamos, the most telling exhibits are not located within the confines of the museums themselves, but just outside. In front of the entrance to the Oak Ridge museum stands a twenty-foot tall steel sculpture of the

twin towers of the World Trade Center, a gift from a Nashville steelworks. Slender shards of rusted steel are welded airily together, giving the appearance of imminent disintegration. The sculpture is unadorned with text, but the message is clear. The immediate use of the nuclear reference point 'Ground Zero' to denote the downtown devastation in New York City was indicative of a commemorative politics of 'moral equivalence'.[3] Like the citizens of Hiroshima and Nagasaki, Americans had suffered shocking random loss on home soil, coming out of a blue sky; a compelling justification for maintaining US nuclear pre-eminence was provided. Outside the Bradbury, the chief public facility of the Los Alamos National Laboratory (LANL), run by the Department of Energy, lies a block of limestone recovered from the Pentagon structure damaged by the terrorist attack on 9/11; another piece is installed in front of the National Security Science Building of the LANL itself. A plaque asserts that both are 'powerful reminders', of 'our historic and enduring connections to the Pentagon and our national security mission'.

War, of course, is a notoriously delicate subject to exhibit, presenting several sensitive representational and indeed moral problems and questions (Winter 2012). Those who are charged with making curatorial decisions about how to display 'the bomb' are faced with problems of representation similar to those of writers who record nuclear devastation. How to describe the indescribable? The atomic bombs challenged conventional ways of thinking and seeing. The two weapons that caused so much misery in 1945 were humanized with cute nicknames, albeit with slightly sinister connotations when placed together in a pairing: the sausage-shaped, uranium-based 'Little Boy' that destroyed Hiroshima on 6 August, and the rotund, plutonium-charged 'Fat Man' unleashed over Nagasaki three days later. But their folksy nomenclature does not equate with what they represent. The ongoing 'terror' of both Hiroshima and Nagasaki, writes John Whittier Treat (1995: 8-9), 'lies not in the number of their dead', but resides in their signification of the new human destiny: potential omnicide as the end result of an obsession with technologies of destruction; self-annihilation as the paradox of scientific discovery. How can atomic museums account for something as intimidating as that? Moreover, the legacy of American nuclearism is complex and contradictory; balancing an appreciation of nuclear energy's manifest constructive applications with the recognition of its palpably destructive past (and potential) presents a daunting challenge to museum curators.

But the biggest question confronting American nuclear museums is ostensibly the most straightforward, and relates to the suspect morality that dogs perceptions of the targeting of Hiroshima and Nagasaki. The use of the atomic bomb was 'somehow indecent', according to the Commander of the Pacific Fleet in World War II, Admiral Chester W. Nimitz, a comment that features prominently in a display at the National Museum of the Pacific War in Fredericksburg Texas, the admiral's home town. The memorialization of war often reflects national self-image; criticism provokes the charge of betrayal and lack of patriotism (Whitmarsh, 2001). When commemoration involves civilian populations incinerated and irradiated at the fall of a single bomb, historical guilt becomes an issue, especially in exhibitions mounted in the country that dropped the thing. Those museums supported by the Department of Energy therefore face a conundrum. For if, as it says, the DOE is dedicated to exhibiting its 'scientific and technical missions and accomplishments', then it has to acknowledge that its most momentous achievement involved mass technological murder, largely of civilians, and prolonged suffering for tens of thousands. Is it possible to celebrate to celebrate American nuclear science without looking shame-faced? In short, how can a human face ever be placed on Little Boy and Fat Man?

Arms and the Man: the Nuclear Museums of New Mexico

The birthplace of Little Boy, most of whose components were manufactured in the sequestered isolation of the high mesa in Los Alamos, New Mexico remains the heartland of American nuclear weapons technology in the early twenty-first century. It is also home to arguably the two most important nuclear museums in the United States. Yet New Mexico state tourism is shy about proclaiming its atomic heritage. The Bradbury Science Museum and the National Museum of Nuclear Science and History barely feature in its marketing strategies. Branding itself the 'Land of Enchantment', the state advertises a wonderland of dramatic desert vistas and ancient pueblos, with a spicy Native American, Hispanic and Wild West past, the stamping

ground of warriors such as Geronimo and desperadoes like Billy the Kid. In New Mexico, you hear a lot about 'the Kid', but little about Little Boy.

From the late 1990s, a peace organization, the Los Alamos Study Group, embarrassed official tourism's concentration on New Mexico's pristine landscapes and non-nuclear history by erecting confronting billboards by major highways. Tourists flying in to Albuquerque Airport were greeted by a gigantic sign looming over the main exit, saying 'WELCOME TO NEW MEXICO: AMERICA'S NUCLEAR WEAPONS COLONY'. In May 2003, a month after the invasion of Iraq, a billboard proclaimed 'WEAPONS OF MASS DESTRUCTION? LOOK CLOSER TO HOME' (Masco, 2005: 488, 495-96). The citizens of Albuquerque did not have to look far, for the munitions storage complex located at the Kirtland Air Force Base on the eastern fringe of the city contains a Cold War stockpile of ageing if fastidiously maintained bombs, missiles and warheads. Late in 2003, house signs started appearing in Albuquerque's streets, with the message: 'WEAPONS of MASS DESTRUCTION? IRAQ: 0 ALBUQUERQUE: 2000 (at Kirtland Air Force Base)'.

Down towards the Mexican border and away from the major tourist centres around Santa Fe to the north, New Mexico's state enmeshment in nuclearism is much more assertively proclaimed. Just across the Organ Mountains east of Las Cruces, an enormous Nike Hercules surface-to-air missile stands upright by the side of the road. Even the casual observer might observe a symbolic shape to the vaulting national energies that were expended in the arms and space races during the Cold War — a sort of one-upmanship, or 'missile envy', to quote the title of book published in 1984 by the veteran Australian anti-nuclear campaigner Helen Caldicott.[4]

The Nike Hercules welcomes visitors to the White Sands missile testing range, at over 8000 square kilometres the largest military installation in the United States. It was at White Sands where America, using captured German V-2 rockets and defecting German scientists, launched its post-war space program in the late 1940s. And it was there where the prototypical atomic bomb — nicknamed 'the Gadget' — was successfully exploded in July 1945, at the Trinity Site in a remote area of the range some distance from the town of Alamogordo**.** Visitors are allowed to view the site on just two days of the year, making it a special nuclear pilgrimage. However, the administrative complex at White Sands is usually open to the public, and houses two museums. One is an open-air 'missile park' containing over 50 of the rockets and missiles once tested on the range, including Patriot Missiles, Sidewinders, Redstones and so on, some perched on their 'vertical erectile launchers' (as the mounting apparatus is called). Visitors are politely told to take photographs while pointed towards the mountains and not the other direction, the rattlesnake-infested wasteland where missiles are still tested. It is an undeniably impressive collection of hardware, parked like a prized collection of veteran automobiles. But it is presented without any mention of its function, why it was created and what mayhem it could achieve. The general effect, as Kenneth Arnold (1989: 641) observed of the presentation of weaponry at the former National Atomic Museum in Albuquerque in the late 1980s, 'is rather like seeing an exhibit of plows that fails to mention farming'.

The accompanying multi-roomed museum exhibits paraphernalia and photographs related to the history of the place. A great deal of technical equipment is on display, including a scale model of 'the Gadget' and more recent hardware, such as the 'Kill Vehicle', used on an experimental missile tested at White Sands in the early 1990s. On my visit in February 2010, a room contained a series of prints by Benjamin Charles Steele, a veteran of the Bataan death march of captured American and Filipino POWs in 1942, an infamous exercise of Japanese military turpitude. This exhibition serves as a subtextual justification for the atomic bombings of Japan, for no explicit military context of any kind is anywhere provided. Elsewhere, there is a display tracing the human habitation of the area, right back to the days when native warriors and Spanish conquistadors and missionaries peopled the landscape. But the centrepiece of the facility is a constantly playing video of President John F. Kennedy's visit in June 1963, with his speech of appreciation to the assembled workers. Kennedy had flown in by helicopter from nearby El Paso in Texas, the state in which he was to die a few months later. On the day of my visit, a clutch of people huddled around the screen, taking in the doomed president's every word. Hardly a soul wandered the nether parts of the museum, let alone looked at the missiles pointing redundantly to the sky in the barren yard outside. Obviously JFK remains a magnetic figure, and for many people a video screen is more appealing than peering at an inanimate object inside

a glass case. But the gravitational pull towards him suggests that, for the average visitor to nuclear museums, the human story may be more compelling that the technological one.

In this respect the Bradbury Science Museum in Los Alamos, the most overtly technological of all the DOE museums, is richly instructive. Los Alamos was originally home to a boy's ranch school, to which rich urban kids from the East were sent to be toughened up. In late 1942 the US Army requisitioned the property, located in sparsely populated high country, and Los Alamos quickly developed into a community of several thousand people, including many eminent scientists, secretly working on the Manhattan Project. The security fences that once protected it from prying eyes have long come down, but it remains a DOE town, with the Los Alamos National Laboratory — the biggest employer in northern New Mexico — conducting multidisciplinary research into renewable energy and earth sciences, nuclear medicine, nanotechnology and supercomputing. It is one of the world centres of big science, and in its way an inspiring as well as important place.

Nonetheless, the core purpose of the LANL is national security, and the cradle-to-grave nurturing of the nation's nuclear arsenal. As the pamphlet issued to visitors to the Bradbury Science Museum pamphlet reveals, 57 per cent of its $2.2 billion budget in 2012 was expended on weapons; just 4 per cent was spent on 'Energy and other programs'. As the self-styled 'window' into the LANL's history and its current activities, the museum is uniquely placed to paint a glowing picture of the various civilian applications of nuclear science: 'Science Serving Society' is one of its catchphrases. But it also provides 'a public platform to justify the continuation of nuclear weapons research amidst calls for Cold War closure', notes the recent visitor Shiloh Krupar, a representative of the anti-nuclear environmental research group.[5]

This makes for an uncompromising exercise in corporate PR. As a member of the museum's professional staff once confided in a moment of stunning candour, 'We're not a true museum…We're a company store' (Taylor 1997: 137).

The Bradbury, for all that, is a serious museum, taking on the professional tone and manner of the organization whose work it showcases. It is a very different museum to the Smithsonian-affiliated, DOE-associated National Atomic Testing Museum in Las Vegas. Brazenly reflecting the character of its location, the Testing Museum's ubiquitous mascot is a nude Las Vegas showgirl crowned 'Miss Atomic Bomb of 1957', with a cotton mushroom cloud covering the intimate bits. The museum features a 'Ground Zero Theater', a mock test site bunker with a simulated bomb explosion, complete with rumbling seats and a blast of air — the bomb becomes another Las Vegas showbiz thrill. The Bradbury museum is more staid: its technological displays seek to inform and engage, though interactive activities and the presentation of a wealth of technical detail.

The Bradbury Science Museum also seeks to persuade and inspire as well as inform. Of its three main galleries, the 'Research Gallery' reflects the Laboratory's basic and applied work, from 'environmental successes' at home in cleaning up radioactive waste (overlooking what created the problem in the first place), to the use of LANL technology to probe the surface of Mars. A display on 'Public Radiation Exposure' pointedly suggests that the average annual dose of radiation received by the Los Alamos public is a small fraction of that received from consumer products or even the natural environment. The 'Defense Gallery' is equally reassuring in tackling the surplus plutonium produced by the weapons program. An exhibit on 'Stockpile Stewardship' is highlighted by the large-lettered words of William Perry, Secretary of Defense in the Clinton administration, to the effect that the weapons are intended to deter and not deploy. A promotional film spruiks the LANL's key role in combating international terrorism. But pride of place in the Defense Gallery is afforded to full-scale models of Little Boy and Fat Man. The exhibits are silent on what damage the bombs wrought, but full of information about their science and specifications, helpfully providing diagrams of their inner workings: a remarkably dispassionate, subtly benign view of weapons that killed tens of thousands of people.

But perhaps the most popular of the Bradbury's three main rooms — crowded on the two occasions I have visited the museum — is the 'History Gallery', which traces the making of Los Alamos into a dedicated professional community that would proverbially alter the course of history. One wall, heralded with a large sign saying 'They Changed the World', is taken up with the photographs and brief biographies of the working men and women of what was a drab frontier town, from nuclear chemists to technicians to humble clerks and typists. It makes for a

moving display. Nevertheless, the History Gallery lionises the major figures of the Manhattan Project, with life-size models of its mercurial scientific director, Dr J. Robert Oppenheimer, and its commanding military officer, General Leslie R. Groves. There are bronze statues of the duo outside the former Ranch School nearby, but in the museum the figures are oddly fashioned out of papier-mâché. An on-line photographer of the exhibition has attached the caption 'I am become papier-mâché' to her image of Oppenheimer — a satirical swipe at the scientist's portentous 'I am become death, the destroyer of worlds', lifted from the *Bhagavdad Gita*, a reference he made in reflecting upon what entered his mind after witnessing the explosion at the Trinity Site in July 1945.[6] But better papier-mâché than invisible. In the Bradbury Science Museum, the bomb-blasted folk of Hiroshima and Nagasaki do not exist: they are out of sight and out of mind.

When a documentary attempt was made to 'people' the Bradbury Science Museum with Japanese, it was met with stern institutional resistance. Bryan C. Taylor has observed what transpired when, in 1992, the Los Alamos Study Group (LASG) successfully petitioned the Los Alamos National Laboratory to mount an alternative exhibit at the Bradbury, using the precedent of a Californian legal ruling in favour of a similar happening at the Livermore National Laboratory Visitor's Centre. Completed in time for the opening of the Bradbury museum when it was moved to its present Los Alamos location in April 1993, the exhibit undermined the quasi-official narrative through a series of wall panels focusing on disquieting subjects such as the environmental conditions at weapons sites and the regret of nuclear scientists. These panels were replaced in 1993 and 1994 by materials loaned to the LASG by the Hiroshima Peace Memorial, including confronting photographs of human carnage and urban destruction (Taylor 1997: 127). The display was opposed by some (though not all) of the professional staff at the museum, who believed that ambiguity would 'confuse visitors', and by dismayed Los Alamos residents and LANL employees. Eventually, in 1995, the Museum and the Laboratory 'reasserted control' over the alternative space by allowing a local community group to mount a counter exhibit rebutting LASG claims (Taylor 1992: 132, 134). These days, there is little ambiguity evident in the museum to confuse visitors. And should they be in any doubt, there is that Pentagon memorial just outside the front door as they depart, to remind them of the abiding importance and integrity of the Laboratory's mission.

The corporate focus of the Bradbury is less in evidence at the National Museum of Nuclear Science and History in Albuquerque, about a hundred miles down the highway south from Los Alamos. Things have changed since the early 1990s when, as the head curator of the Smithsonian's 'Science in American Life' exhibition, Arthur Molella visited the museum to gather materials and encountered 'a deliberate, almost perverse, avoidance of the historical uses and the apocalyptic implications of nuclear arms' (Molella 2003: 212). Back then, the museum was called the 'National Atomic Museum' and was located on the Kirtland Air Force Base. Post 9/11 security concerns about having a public museum on a military facility that warehoused nuclear weapons led to it being moved to the city's 'Old Town', a tourist hub. Many local residents and business people thought that sharing their adobe restaurants and souvenir stores with an atomic museum debased the Spanish-colonial charm of the area; the Redstone missile placed outside the building and towering over the low streetscape was a particular irritation. In 2009, rebranded the National Museum of Nuclear Science and History, the museum (along with the Redstone) moved to its present complex in the suburbs.

The nation's only congressionally chartered museum in the field and affiliated with the Smithsonian Institution, the National Museum of Nuclear Science and History's mission statement says that its exhibits and educational programs 'convey the diversity of individuals and events that shape the historical and technical context of the nuclear age'.[7] Thus it seeks to strike a balance between the presentation of the military aspects of the Nuclear Age with its cultural, environmental, medical and scientific dimensions. Its predominantly educative emphasis is a feature of nuclear museums all over the United States. The American Museum of Science and Energy at Oak Ridge, for example, goes to some lengths to heighten scientific awareness. Visitors to the male toilets (called 'Urination Stations') are confronted by a panel positioned at eye-level as they stand at the urinal, which asks a series of questions about the business at hand, such as 'Why is it Yellow?' and 'What's that Smell?' In the Albuquerque museum many of the displays are directed specifically at children and meld education with entertainment. The

reactor meltdown on Three Mile Island in 1979 and the catastrophe at Chernobyl in 1985 are contextualized, for a young audience, by a reference to the chronically malfunctioning nuclear power plant at Springfield in *The Simpsons,* of which Homer is an endearingly bumbling employee. One room in the museum, 'Little Albert's Lab', presents the basics of physics to budding young Einsteins. In a comically thick German accent, an automaton of the legendary shock-haired scientist replies to technical questions that are delivered at the press of a button. To, 'What is the fastest thing in the universe?', 'Einstein' comes to life, with *'Vot a good question, kinder!'*

The shocking destructiveness of nuclear weapons, the thing that simultaneously appals and fascinates visitors in these museums, is not forgotten. As well as the obligatory replicas of Little Boy and Fat Man, panels present both sides of the debate to deploy the bomb over Japan, along with photographs of the destruction of Hiroshima. The iconography is familiar but affecting. A child's shattered tricycle; an irradiated human shadow; a watch stopped at the fateful moment just after 8 am that hot August morning. The museum's inclusiveness is manifest in its selection of temporary exhibitions such as (in 2012) *Transforming the Human Spirit: From a Culture of Violence to a Culture of Peace*, produced by Soka Gakkai International, a Japan-based lay Buddhist movement. There is also an impressive comprehensiveness to the collections on permanent display, in keeping with the contemporary tendency of war museums to move beyond the battlefield to take in the diverse social histories that arise out of military conflict: a shift early illustrated, in 1987, by the *A More Perfect Union* exhibit mounted by the Smithsonian's American History Museum, which considered the experiences of thousands of Japanese Americans before, during and after World War II. One of the most engaging rooms in the Albuquerque museum houses artefacts of the material culture of the early Cold War period. The marketability of the atomic label in the late 1940s and early 1950s is revealed by numerous comics, games, appliances and domestic products, such as a box of 'Atomic' detergent ('have a blast in your kitchen'), a pack of ABC 'Radium' cigarettes, and a painkilling ointment called 'Atomic Balm'. One surveys these relics of a bygone age while being serenaded by a selection of atomic bomb hit songs, most of which are exuberantly celebratory. But at least one of these, playing the day I wandered through the room, sounds a distinctly discordant note —Sam Hinton's apocalyptic lament 'Old Man Atom' (1950), penned by the activist folk singer Vern Partlow:

> Well, I'm gonna preach you a sermon 'bout Old Man Atom
>
> I don't mean the Adam in the Bible datum
>
> I don't mean the Adam that Eve mated
>
> I mean the thing that science liberated
>
> Einstein says he's scared
>
> And when Einstein's scared, I'm scared.[8]

While even-handed in its presentation of the pros and cons of the atomic inheritance, the Albuquerque museum remains a proud tribute to national nuclearism as an expression of American acumen and entrepreneurial spirit. The museum mixes its messages, partly because of museum design and a cluttered layout. No doubt the intention is to present both the constructive and destructive outcomes of nuclear technology, and it may be that disorientation — a characteristic condition, after all, of the Nuclear Age — is a curatorial objective. But the juxtaposition of the displays is bewildering. The spectator's gaze at the photographs of the carnage at Hiroshima, for instance, cannot help but be redirected to the sight of the replica Titan missile looming overhead above the low partition in the adjoining Cold War room, crammed with facsimile bombs and gadgetry. The exhibit specifically related to Hiroshima shows documentary footage of the city's desolation, shot soon after the bombing. The film is graphic, but an assertive voice-over puts a jarringly positive spin on the event. The bomb saved lives, both Japanese and American, and the Japanese were pathetically grateful the war was over: they had been done a favour. Nuclear weapons become, in a fundamental sense, anti-war.

The disconcerting ambiguities continue as one heads towards the exit leading to the

outdoor 'Heritage Park', with its assortment of superannuated and superseded nuclear warheads, rockets and missiles. Near the exit a wall panel cites anti-nuke 'Protest and Satire' (with all the usual suspects drawn from American popular culture, including Bob Dylan and *Dr Strangelove*), and a Doomsday Clock reminds us how perilously close it is to midnight. But then, right by the exit, stand a B61 and B83, two of the most modern thermonuclear bombs in the US arsenal, designed by the Los Alamos National Laboratory. A chunk of the Berlin Wall lets spectators know as they depart the museum proper just who won the Cold War; and there is a valedictory reference to 'rogue nations', a reminder of the national imperative to maintain and extend the winning edge in weaponry.

That visitors to the Albuquerque museum are ushered to this final impression should not be surprising. While its operating costs are borne by the museum foundation, its principal benefactors include Bechtel, a leviathan military and nuclear contactor and a co-manager of facilities at the LANL and the Livermore Laboratory in California, the missile maker Lockheed Martin, and also the Sandia National Laboratories, a major DOE research and development laboratory whose primary mission is to ensure the reliability and superiority of the American nuclear arsenal. The Sandia complex is located just down the road from the museum, on the fringe of the Kirtland Air Force Base, where the museum originated in the 1960s. When it moved back there in 2009 after its brief tenure in the Old Town, it had come 'home' in more ways than one.

Nuclear Victory — and Victimhood

National defensiveness in exhibiting war is hardly peculiar to the U.S. The Yusukan museum at the Yasukuni shrine in Tokyo, which presents Japan's reign of terror in the Asia-Pacific as a benevolent exercise in liberating the region from the yoke of Western colonialism, is an extreme expression of a national tendency toward wartime denial. Though pockmarked with nuclear reactors (of which the Fukushima complex is the most catastrophic example), and sheltering beneath the U.S. defence umbrella, Japan sees the events of August 1945 somewhat differently from Americans. The bombings were a convenient calamity to some in Japan, clouding wartime culpability and handing the nation the high moral ground. The several 'peace museums' that opened in Japan in the 1990s, critically depicting Japanese military behaviour in the Asia-Pacific War, provoked a furious conservative backlash (Duffy 1997). The Osaka International Peace Center, for example, incited an angry reaction from members of the dominant Liberal Democratic Party, who attacked it for exhibiting anti-Japanese 'propaganda'. In 1996, conservative nationalist groups succeeded in aborting a planned exhibit in the Nagasaki Peace Museum which committed the sin of highlighting the Nanjing massacre and the Japanese military's sexual enslavement of women from occupied territories, the euphemistically-named 'comfort women' (Hein and Takenaka 2007: 65, 70)

Japan's premier atomic museum, the Hiroshima Peace Memorial Museum, established in 1955 and wholly operated by the city government through the Hiroshima Peace Culture Foundation, has often been criticized for inadequately contextualizing the atomic bombings. Much of this criticism has emanated from outside Japan; revealingly, the museum has attracted little anger from bilious nationalists. Some years ago the museum responded to charges of lack of context by placing a sequence of photographic wall displays that are positioned to greet visitors as they enter the main hall. These photographs locate Hiroshima's urban history as a major military centre (and hence a legitimate target), and document Japan's campaigns of foreign aggression. It might also be argued that the museum's main purpose is not to remember the long and bloody years of war, but to memorialize a single cataclysmic event, the death of a city and the birth of the Nuclear Age. However, as John Dower (1996: 123) has noted, this focus tends to fix attention 'on what had happened to Japan [while] simultaneously blotting out recollection of the Japanese victimization of others'.

Certainly, the museum is fundamental to the municipal authority's exploitation of the city's nuclear notoriety. Hiroshima has turned itself into an urban paradox, a go-ahead city that has invested its identity in the historical fact of its obliteration. Located in 'Peace Park', landscaped from the original devastation around Ground Zero across the river from Hiroshima's enduring symbol, the skeletal A-Bomb Dome, the Peace Memorial Museum is the centrepiece

of what has become a vast and proliferating commemorative complex. Peace Park now houses so many monuments — including not one but three 'peace bells' — that its spacious grounds are no longer sufficient to contain them, and they are spilling out into the surrounding streets: the city has taken on something of the appearance of a theme park. The civic planners and politicians of Hiroshima want to have it both ways, envisioning the city as, in Ian Buruma's words (1995: 96), 'the exclusive site of Japanese victimhood', while also promoting it as a 'Mecca of world peace' and hence having a transnational significance that transcends insular 'Japaneseness'.

Whatever misgivings one might have about the Hiroshima Peace Memorial Museum and its strategic place in commemorating the city's martyrdom, it reminds us that Hiroshima was a real place, populated by flesh-and-blood people. The most compelling part of the exhibit reveals Little Boy's intimate impact on the life of the city. The selection of relics, with its emphasis on the suffering of schoolchildren, is undeniably manipulative. Yellowing fingernails and shreds of skin kept by the mother of a teenage victim are accompanied by the words: 'Suffering from terrible thirst, he is said to have tried to suck the pus from his raw, nail-less fingers'. Urban legend is transformed into historical documentation. Yet the emphasis on mass civilian suffering is appropriate. Thousands perished that August day, many of them women, children and the aged, killed not knowing what had hit them; thousands more died, often horribly, in the months and years later. These are lives surely worth acknowledging.

While intensely parochial, the Hiroshima museum is also dedicated to communicating lessons about the universal human consequences of the scientific breakthrough of nuclear fission. Its preachy didacticism can be a little wearying, though one can hardly argue with the substance of the message or with the earnestness with which it is conveyed. It has a sympathetic, as well as captive, audience, for the bomb that wiped out Hiroshima put it on the map; it is the very reason people visit the city. The museum attracts huge numbers of visitors — around 1.2 million people annually.[9] Nearly 25 per cent of the annual visitor intake consists of foreigners, many of them from the United States. The museum makes a conscious attempt to communicate with this audience, accompanying exhibits with bilingual and sometimes multilingual signage, while visitors can listen to survivor testimony on computer monitors in several different languages (Hein 2007: 14).

By contrast, of the 110,000 or so people per year who visit the Bradbury Science Museum in Los Alamos — a healthy number, given how little it is advertised, and the amount of competing attractions in the vicinity — a mere 7 per cent are foreigners.[10] The American museums have a home-grown audience, which is carefully cultivated. They are communicated with by a single tongue, not only in terms of the monolingual signage but also in the tendency to neuter the national nuclear story of controversy and repackage it as palatable commemoration. That the Bradbury is consumer-minded is revealed by the 'Experience Survey' visitors can access on a computer by the exit. A few prosaic questions such 'Was the museum easy to find?' are followed by this: 'Now that you've visited the Bradbury Science Museum, tell us how likely you are to support the kinds of work the LANL does', including its 'role in nuclear weapons design and development', its 'role in stockpile stewardship'; its 'role in threat reduction', and its 'ongoing strategic research'. Visitors are asked to say whether they are 'Fully Supportive; Very Supportive; Moderately Supportive; Neutral; Moderately Non-Supportive; Not Very Supportive; or Fully Non-Supportive [sic]'. It is hard to think of a clearer example of corporate determination to ascertain if the desired message is getting through.

Ultimately, the lesson to be drawn from a comparison of the museums of Japan and the United States is that nuclear victimhood is less problematic to commemorate than nuclear victory. Yet is there such a thing as 'victory' in conflicts that involve nuclear weapons? Something big is at stake here. As Arthur Molella (2003: 214) notes, atomic museums have a 'virtual monopoly on nuclear exhibitions', and hence are instrumental in shaping public attitudes towards the Bomb'. There is some truth to the opinion of one of the no-nuke activists of the Los Alamos Study Group, that museums such as the Bradbury do not blithely present 'history', as if it is an unproblematic collection of 'facts'; they also in a sense *make* it. As he goes on to remark, how we are made to see the past determines the way we see the present, and also, crucially, 'determines where we go from here' (Taylor 1992: 138). The 'we' in this sentence should be taken on notice, for a lamentable irony of the evasiveness of its nuclear museums is that the

United States, though its domestic weapons testing program, is itself perhaps the most nuked country on earth.

By inadequately acknowledging the suffering that nuclear power has caused people in the past, the museums risk perpetuating that suffering — not least among Americans themselves. While the National Atomic Testing Museum at Las Vegas parades 'Miss Atom Bomb 1957', it largely ignores the 'Downwinders', the thousands of regional residents chronically radiation-affected by the fallout from the relentless atmospheric and underground testing at the Nevada Test Site, which created 'an ongoing regional catastrophe' in land purloined from local Native American people.[11] The highlight of the monthly DOE bus tours that pass through the test site's open-air museum is the Sedan Crater, a hole in the ground over 400 metres in diameter and 100 metres deep, created in July 1962 by the detonation of a thermonuclear device with the power of eight Little Boys. The detonation was part of 'Operation Plowshare', designed to reveal potential peaceful purposes (like earth removal) for nuclear explosions; from 1961 to 1973 over twenty thermonuclear explosions took place in Nevada and a couple each in New Mexico and Colorado. Two plumes spreading north-east over the continent from the Sedan site exposed several million people to radiation, including those living as far away as Illinois: a point somewhat lost on today's tour guides, intent on encouraging visitors to admire the crater's physical immensity.[12]

Meanwhile, the DOE is now running public tours — available to US citizens only — to the nuclear complex at Hanford in Washington. This is the most radioactive site in the United States, with a record of workforce endangerment and environmental despoliation: the adjacent Columbia River, a major irrigator of Northwest farmland, was polluted with radioactive runoff for two decades. All of Hanford's nuclear reactors have been permanently entombed, except the 'B Reactor' that produced the plutonium for the weapon that tore Nagasaki apart in August 1945. The DOE reassures tourists that 'any potential hazards for your child have been removed or sealed to prevent any contact' (parents of children aged under 18 have to sign a release form indicating their awareness of 'potential hazards'). Tour guides praise the facility as 'the perfect marriage of science and engineering'.[13] Yet the site is still undergoing a massive clean-up that is way behind schedule and not progressing well, with recent reports suggesting that plutonium-contaminated waste stored in decaying underground tanks is leaking into soil.[14] Undeterred, the 'B Reactor Museum Association', encouraged by associations such as the Atomic Heritage Foundation, is seeking to augment the public tours with a museum. It has official support on its side, for in 2008 the B Reactor was registered as a National Historic Landmark, a select list that includes Mount Rushmore, the Empire State Building and the White House.[15] t remains to be seen how this museum will present the Hanford facility, whose blighted past continues to seep into the present, and threatens to imperil the future.

War museums, writes Jay Winter (2012: 161), 'face a stark choice: either they aim at an interrogation as to how war can be represented or they can continue to deepen lies and illusions about it'. The same principle, I would argue, applies to nuclear museums. The corporate and institutional loyalties of nuclear museums in the United States preclude a proper interrogatory public response to national nuclearism — to America's cost. The Manhattan Project, as Joseph Masco (2006a: 7) bracingly observes, 'can never really end'; nuclear technologies 'are now forever part of the world system'. The challenge to the American museums is not merely how to lament the tragic past but how to engage with a fraught future, for everybody's sake.

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Notes

1 Department of Energy web site: see http://energy.gov/management/office-management / operational-management/history/manhattan-project, accessed 17 September 2013.

2 http://energy.gov/management/exhibits-museums-historic-facilities-and-public-tours, accessed 28 July 2013.

[3] See David Simpson, 'Naming the Dead', *London Review of Books*, 19 November 2001, 6.

[4] Helen Caldicott, *Missile Envy: The Arms Race and Nuclear War* (New York: Morrow, 1984).

[5] Krupar, Shiloh. (2013) 'Report from the Hilltop: Highlights of the Los Alamos Bradbury Science Museum', www.nationaltlcservice.us/2013/05/los-alamos-bradbury-science-museum/ accessed 4 December 2013. This is an on-line publication of the National Toxic Land/Labor Conservation Service.

[6] The photographer is Evelyn Aschenbrenner. See http://www.flickr.com/photos/detroit_import/4108371188/, accessed 27 July 2013.

[7] See museum web site: http://www.nuclearmuseum.org/visit-/, accessed 30 July 2013.

[8] Lyrics to 'Old Man Atom': see 'Conelrad: Atomic Platters — Cold War Music from the Golden Age of Homeland Security', http:www.atomicplatters.com, accessed 15 September 2012.

[9] See www.hiroshima-navi.or.jp/en/konnamachi, accessed 4 December 2013.

[10] See Jenna Berger (2006), 'Nuclear Tourism and the Manhattan Project'*, Columbia Journal of American Studies*, 7, 196-214.

[11] See Rebecca Solnit (2004), 'Meanwhile Back at the Ranch: The Wild Wild Wars in the West', http://tomdispatch.com/blog/1674/, accessed 4 December 2013.

[12] The author attended the Department of Energy tour of the Nevada Test Site in September 2011.

[13] Joshua Frank, 'Hanford's B, the World's Most Toxic Nuclear Site', 10 September 2009, http://www.internationalnews.fr/article-36182108.html, accessed 29 July 2013. See 'Tour Information', Department of Energy Hanford Site B Reactor Tours, http://manhattanprojectbreactor.hanford.gov , accessed 4 December 2013.

[14] See Valerie Brown, 'Hanford Nuclear Waste Cleanup May Be Too Dangerous', *Scientific American*, 9 May 2013, http://www.scientificamerican.com/article.cfm?id=hanford-nuclear-cleanup-problems&..., accessed 4 August 2013.

[15] The B Reactor Museum is envisaged to become part of a Manhattan Project National Park, taking in the 'secret cities' of the project, Hanford, Los Alamos and Oak Ridge. The plan was unanimously approved by a House Committee of the US Congress in April 2013.

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