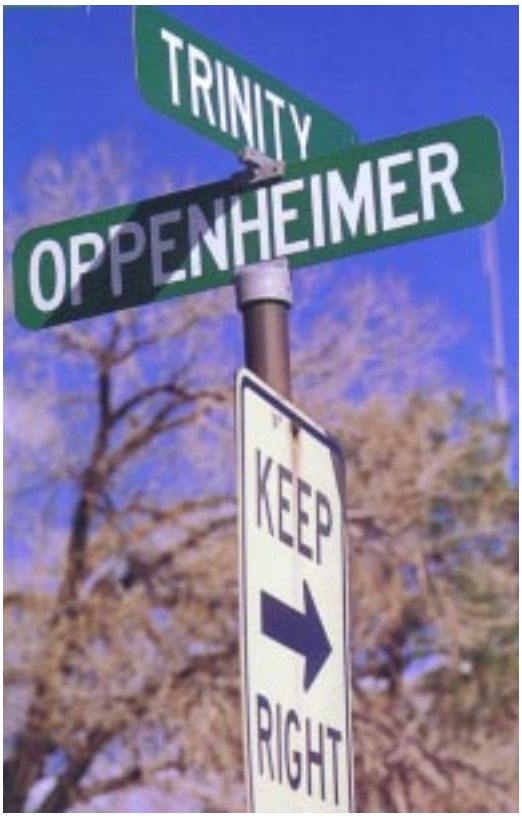
The Road from Trinity: Reflections on the Atom Bomb

Essays by Paul Saffo
Photos by Naonori Kohira

(Published in Japan by Shoga Kukan Press)

Chapter 1: Trinity

The wind talks in this empty place. It whispers through the chaparral, and traces crows-feet hieroglyphs in the soft desert sand. "This is the place of the world-changers," it whispers. "Here men wielded terrible knowledge, transmuting equations into energy stolen from the atomic heart of matter." For an instant, men became like Gods. Now the men are shadows, but their dark magic remains—a legacy for all mankind.



I came to Trinity seeking answers, but the wind's harvest was a new burden of questions. Was the bomb necessary? Was it inevitable? Were its builders detached Prometheans, or debased cogs in an inhuman machine? Did they think their gadget would make war too terrible to contemplate? Were Hiroshima and Nagasaki pointless sacrifices, or did their destruction avert some later, yet-greater horror? What lessons are hidden in this nuclear bequest? Certainty leaked from my being like water seeping into parched sand.

Trinity is a strange and empty crossroads, a place of stark beauty cradled in the bowl of the New Mexico sky. Names of unintended irony hang on its terrain, conferred by anonymous travelers hastening to unknown destinations. It is as if this place anticipated its destiny. Awed by its hostile desolation, the Spaniards called this broad plateau the "Journada de Muerto," the Trail of Death. The Sierras Oscuras, the dark

mountains, loom over Trinity, their ridges bannered with ragged clouds raveling like Tibetan prayer flags. "Funny how the mountains always inspire our work," Robert Oppenheimer is said to have remarked to a toiling colleague while looking up at the Oscuras from Ground Zero during a rare break in the race to rig the Trinity device. To the south are the Mockingbird Mountains, and to the northeast, Stallion Gate and the Cerro de la Campana, named after the church bell it resembles.

But no label captures the paradox of this place more than Trinity itself. A code name conferred by Oppenheimer to both the test and the place, "Trinity" is a deeply religious term in the Christian canon, referring to the Divine Creator in its tripartite form. Oppenheimer himself never explained the choice, except to note that it may have been inspired in part by a passage from John Donne's *Holy Sonnets* that begins, "Batter my heart, three-person'd God…"

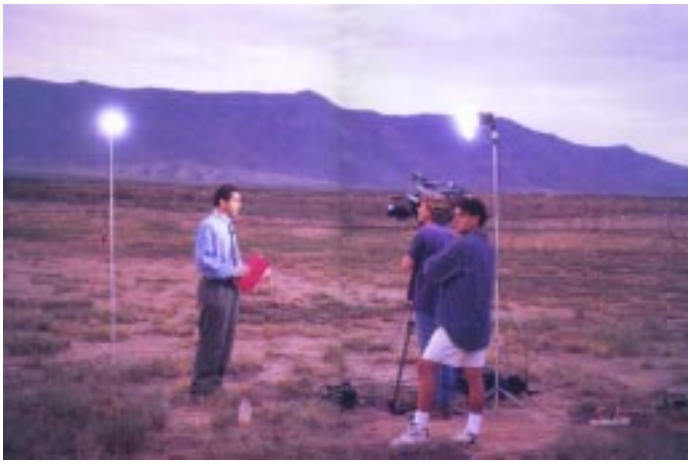
"Oppenheimer blasphemed, to call this place Trinity," the agitated minister muttered to me. We and several hundred others—a rag-tag collection of protesters, history buffs, and Los Alamos veterans—were huddled by our cars in the pre-dawn gloom outside the Stallion Range Station Gate. It was the fiftieth anniversary of the Trinity test, and we were all waiting for White Sands base security to convoy us to Ground Zero. Behind us, the shoulder of Cerro Campana blocked the starlight. Somewhere up there at this moment fifty years ago, physicists Hans Bethe, Edward Teller, and others from Los Alamos also huddled in the gloom, waiting for the Trinity shot. What would they have said to the minister? I started to venture a reply, but just then a bullhorn-amplified voice announced that the gates were opening, and our conversation was cut short by the sound of car doors slamming and engines slipping into gear.

We approached Trinity from the west, our convoy trailing a dust-plume along a dirt

road that rises gradually toward the Oscuras. A chain-link fence rings the shallow depression that is Ground Zero. One must look closely for signs of the violence unleashed here fifty years ago. Bits of greenish glass, atom-fused desert sand, crunch underfoot, and in the center of the ring, eroded footings of the converted fire tower that cradled the wire-festooned bomb. It yielded barely twenty kilotons, a mere pop compared to the thermonuclear monsters that sat cocked in silos during the Cold War. Its mate dropped on Nagasaki would kill a multitude and wreck a city. Here, the bomb did little besides incinerate sagebrush and varnish the desert floor. The tower was vaporized, but barely two miles away the McDonald ranch house weathered the blast intact, surrendering only its windows to the over-pressure. Even the shallow crater is deceptive, more the consequence of bulldozers removing radioactive glass than of the erosive effects of the first blast.

But for the assorted memento mori assembled here, a passing hiker would hardly guess that history hung in the balance at this place fifty years ago. Weathered photos of the blast are wired to the inside of the perimeter fence. A model of the "Fat Man" bomb dropped on Nagasaki sits awkwardly on a rotting transporter. An elephantine steel containment vessel nicknamed "Jumbo" lies abandoned a quarter of a mile to the south. All but untouched by the atomic blast, the engineers later tried to destroy it by detonating eight conventional 500-pound bombs inside it. The blast merely blew off both ends, leaving the central cylinder raggedly intact. It resembles the rusting peach cans one finds in desert ghost towns, only blown up to monstrous size like some atomic mutant from a 1950s science fiction movie. The engineers dragged the hulk over to what is now the parking area as a curiosity. It now serves as a windbreak for a hot dog stand and a booth selling souvenirs.

At the very center of Ground Zero, in the middle of the square formed by the four piers of the vaporized tower, is a small obelisk made of volcanic rock. On it is a plaque memorializing the Trinity shot. This morning, visibly nervous Air Force MPs flank the monument, an awkward and ironic honor guard. Visits to Trinity are nothing new, but this "open house," as the White Sands Public Affairs Office describes it, is something different. Ordinarily, the site is opened twice a year, but in April and October and not on the actual date of the Trinity shot. Weather is the proffered reason: summer in the Journada de Muerto is searingly hot, and even the scorpions have the sense to lay low.



The date-shuffling also works to keep the "open houses" low-key, attended mostly by history buffs, veterans and retirees, schoolchildren, and a few peace activists. Today was clearly going to be different. Barely after 5:00 a.m., the dusty lot was all but full, and hundreds were milling around the obelisk at Ground Zero, its face eerily lit by video lights. Just outside the ring sat a CNN satellite truck, a military communications van, and, inexplicably, a nerdy pack of ham radio operators under a war-surplus canteen tent. Out on the horizon, the road from Stallion Gate twenty-five miles away was necklaced by a garland of headlights: hundreds more visitors trekking to Ground Zero.

White Sands prohibits demonstrations of any kind at Trinity. No ceremonies, no speakers, no banners. On this day, the visitors had other ideas. Scruffy twenty-somethings affecting hippie tie-dye tried to throw a human ring around the obelisk, and ended up playing cat-and-mouse with the unhappy guards. Off to the side, a World War II veteran was eagerly lecturing the CNN reporter about the moral rightness of the bombs dropped on Japan. A stately group of gaijin Buddhists from somewhere north of Santa Fe were gathered just inside the fence, quietly chanting sutras as a puzzled and dispirited MP looked on, unsure what to do. The atmosphere was charged with the emotion of utter, conflicting certainty. The wind whispered its questions past unlistening ears.

At 5:29 a.m., the exact moment of the detonation's anniversary, a protester threw a vial of liquid on the obelisk (Reuters reported that it was blood), and was promptly hustled off by the guards. I recognized his face in the camera lights; he had wandered up to the minister while we were waiting outside Stallion Gate. "I live near Three Mile Island," he volunteered with an odd, unbalanced look in his eyes, and muttered something about evening the score. The MPs added to the farce by bringing up a HumVee-mounted fire-pumper to wash off the monument, even though the liquid thrown by the protester had promptly evaporated into the dry desert air. The result was a media circus of the absurd: a poor sergeant under orders dutifully hosing off an invisible fluid as the erstwhile hippies chanted, "You can never wash it off."

But amidst the antics of the certain, one gesture stood out in its quiet dignity. A woman had come with 1,000 origami cranes folded by children in New Mexico and Japan. When told that she could not place the cranes on the obelisk, she silently obliged the order and stood immobile, holding the garland as high and as close to the monument as the guards would allow.

I retreated from the circus at Ground Zero to the quiet of the McDonald ranch house two miles to the south. It was here that the final assembly of the atomic heart of the Trinity device was completed. Physicists "tickled the tail of the dragon," coaxing a sphere of plutonium the size of a marble to the edge of criticality before placing it in its nest of high explosive. At the very moment of their desert toilings, delegates to an infant United Nations were gathering in San Francisco to forge a new world order. They had no idea that it would be a world order based on the rarest—and deadliest—of elements in the atomic table.

Even in the isolation of the McDonald ranch, one can feel a restless agitation in this place. Through an empty window frame, I watched as thunderheads gathered over the Oscuras, much as they did fifty years earlier when a storm first delayed and then nearly canceled the Trinity shot. Like some echo of that unearthly detonation, a distant clap of thunder rumbled down off the mountains and across the empty desert.

A black-and-white photo of Oppenheimer sits on my desk as I write this. His eyes stare through the camera as if tracing a point on the edge of infinity. It is a gaze that is too wise, and vastly sad. It bespeaks a message as subtle and ambiguous as that whispered by the wind at Trinity. Do not race to answers. Do not flee from contradiction, and do not yield to the counsel of despair. The shade of Donne joins in: Trinity is three made into one. It speaks not just of death, but also of resurrection and redemption. Trinity is a place for asking questions, not finding answers. At this spot half a century ago, history collapsed into a singularity and then raced outward at lightspeed, riding the photons of that first unearthly blast. History is racing outwards still, carrying the wind's questions. The questions that once troubled Oppenheimer and his colleagues now belong to us all.

Chapter 2: Hiroshima

We arrived in Hiroshima at the peak of rush hour on a wet October evening. Navigating the maze of Hiroshima station, we finally emerged at Hiroshima Ekimae, swimming like salmon against an umbrella river of homeward-bound commuters. I knew that Hiroshima was anything but the "atomic desert" that scientists once feared it would become; yet the sheer crowded exuberance of the city still caught me by surprise.

Packing into an overstuffed Hakushima Line tram, we headed toward the Genbaku Dome in spite of the gathering darkness. Peering through rain-streaked windows at the crowds bustling along Aioi-dori, I realized that it was not just the train station; Hiroshima is a city very much in motion. By contrast, the Genbaku Dome park was an island of quiet gloom in the heart of Hiroshima's neon hyperactiveness. Darkness pooled beneath the willows, and oil lamps guttered before soggy strands of origami cranes that hung from the wrought-iron fence. Above, the Genbaku Dome glistened in floodlit silhouette against a bleak and lowering sky.

As my eyes adjusted to the gloom, I was startled to discover that we were not alone. Who besides a crazy gaijin and his bemused photojournalist friend would pause here in this haunted darkness? The shadows resolved into the young, seeking the secluded intimacy of this truly beautiful spot. Every last bench along the river bank was occupied by trysting couples. Recalling descriptions of the Aioi River thick with the corpses of the atomic dead, I shivered. Scenic and private as this place may be, romancing one's sweetheart here seemed as inviting as picnicking in a cemetery. When the lovers gaze into the dark water, do they see the ghostly faces of the genbaku obake gazing back? On impulse, I approached a couple and started to ask. But I could not find the words. My question hung there, unasked, and I turned away. I rejoined Kohira, and we retreated from the bubble of gloom back into the neon bustle of Kamiya-cho.

Hiroshima is a place defined by contrast, and the evening's encounter with the lovers and the dead was but the first I observed. Another awaited me at the Peace Memorial Museum the next morning. It is a place torn

between serving as a memorial to those who died, and an object lesson to a still-uncomprehending world. I was unmoved by the statistics of death and overwrought dioramas of atomic suffering, but deeply touched by the artifacts that spoke of those who died. The rusted bicycle of a child. The shadow of a man printed on granite steps by an atomic flash camera. A pair of broken spectacles. I could hear the wind of Trinity whispering through these ordinary objects: "This is the consequence of terrible knowledge, wielded in arrogant and uncomprehending haste."

The bomb's true nature is revealed by the private tragedy of the one, and not in the cold mathematics of the many. Hiroshima of the myriad dead is an incomprehensible abstraction; Hiroshima of a father burying the favorite toy of a lost son is the place all of us inhabit. Now I understood why the American Legion and the Air Force Association were so adamant in opposing the display of any Hiroshima artifacts in the Smithsonian's Enola Gay exhibit that I had visited half a year earlier. A single ruined and rusted lunchbox would have sufficed to soften the heart of the toughest of warriors, and insinuate doubt into the simplistic certainty of veterans unwilling to reconsider the history they helped make.

Hiroshima's Peace Park offers contradictions of a different sort. Built during the darkest years of the Cold War, it is less a memorial to the dead than a symbol of the inhumanity of atomic warfare. Its neo-modern 1960s architecture speaks of what, ironically, now seems a simpler and safer age. A time when the nuclear club was small, and nukes were frightening, but controllable, weapons of statecraft. The Park's monuments are calculated to persuade citizens, and humble statesmen who might otherwise contemplate pushing the nuclear button once again. The aging monuments are thus also monuments to success, for in all of the geopolitical folly in

the last fifty years, no bomb has been dropped since Nagasaki. Those who conceived of the Peace Park can take satisfaction that their message contributed in no small measure to the determination of publics, and the restraint of their leaders.

Now the Cold War is over, and its bipolar balance of terror has yielded to a far more unpredictable multipolar world. The nuclear monopoly of states is transmogrifying into a global atomic marketplace. Forbidden knowledge is leaking out of top-secret labs. Stocks of fissile materials are vanishing across porous borders in the former Soviet Republics. Any nation determined to have a bomb of its own can, with ever-less effort, make its wish come true. Before long, terrorists may find that they, too, can move up from sarin gas and fertilizer bombs to tiny bits of the sun's heart carried in crude but portable packages. The prospect is enough to make one nostalgic for the innocent age of Dr. Strangelove, when only half a dozen fingers rested on doomsday buttons.

As I wandered through the leafy quiet of the Peace Park, an old question returned to me: what is it about the Hiroshima bombing that makes it so unique? Why, in a world full of ever-newer horrors, does this incident stand out so sharply? The question has haunted me like some Zen koan mind-puzzle. Certainly, it was not the number of dead; Hiroshima's lethal statistics are dwarfed by those of the Tokyo firebombings. The cruel novelty of radiation poisoning certainly is part of the answer. Oppenheimer had forecast a Hiroshima death toll of 20,000, but no one at Los Alamos had anticipated radiation sickness, incorrectly concluding that the radiation effects would not extend beyond the fireball's killing zone. In other words, anyone who might otherwise have died a slow and horrible radiation death would have already been vaporized or incinerated by the initial blast.

Word of radioactive horrors that filtered out of Hiroshima were sufficient to dissolve the certainty of scientist and politician alike. The first images of suffering Hibakusha sowed the seeds of the anti-nuclear movement, yet radioactivity alone does not explain the bomb's unique place in the history of human cruelty and destruction.

"It's the most perfect AP [aiming point] I've seen in this whole damned war." This is how the Enola Gay's pilot, Paul Tibbets, described the Aioi Bridge. Indeed, the distinctive T-shape of the bridge stands out on maps and aerial photos, like the ring on the finger of a city-sized hand. Tibbets'

words echoed in my memory as I stood at the apex of the "T," gazing out over the Genbaku Dome and the Peace Park. Out of the echoes came the beginnings of an answer. The bomb's greatest horror lies in the power it conferred upon a single individual. It is the power of the few to coldly and arbitrarily affect the many. It took hundreds of bombers to incinerate Tokyo, but one plane and one crew reduced Hiroshima to slag.

Tibbets and his small crew sat atop a pyramid comprised of men and glittering machines. Its base was composed of the thousands of workers at Oak Ridge and Hanford, and acre upon acre of reactors, centrifuges, and diffusers. Tapering upwards, it encompassed the physicists of Los Alamos and their mountain retreat. Higher yet were keepers of the atomic secret in Washington, D.C. and the delivery team at Tinian. Each step up the pyramid delivered ever-greater power to an ever-smaller group. The Enola Gay occupied its very tip. Alone, it would sow more destruction than an entire bomber wing would accomplish over Tokyo.

Gazing down, I noticed a dragonfly droning idly over the languid surface of the river below. Its shadow crossed the reflection of a cloud, and in a dizzying moment an errant ripple distorted it into the cruciform outline of a high and distant Superfortress. The Enola Gay approached the AP, the apex of the atomic pyramid. Tibbets handed control of the plane to his navigator, and the navigator flipped a switch, handing control of the plane to its primitive bombsight computer. A minute later, "Little Boy" was released automatically by the machine and began its slide down along an invisible ballistic arc to a point above Shima Hospital. I mentally counted the sixty seconds to criticality, and as the seconds peeled away, the answer to the koan revealed itself: the apex of the pyramid was occupied not by a man, but a machine.

The most powerful weapon in human history had in the end been unleashed by a mere machine, a blindly stupid collection of relays and wires. Beneath its apex were layers of human acolytes, who had labored to lift the bomb into the sky. As each layer completed its task, the huge pyramidal juggernaut turned them into mute irrelevancy. The workers at Oak Ridge did not know the full purpose of their labors, much less its ultimate target. And the plaints of Los Alamos scientists for nuclear restraint were ignored by the warlords and the politicians picking the targets. Ultimately, even Tibbets and his navigator, their task complete, became passive observers, mere cogs in a monstrous machine as the juggernaut flew onwards.

Reflections on the Atom Bomb

The bomb's inhumanity is not just figurative—it is literal. In the final moments before the explosion, the Enola Gay became a lethal robot guided by a "brain" possessing a mere fraction of the intelligence guiding the dragonfly below me. Humanity's collective shudder in August 1945 came not from the neutrons unleashed by the bomb, but the electrons running through the wires of the bomb computer. The event foreshadowed a world of nuclear robot-rockets sleeping in silos, awaiting orders from yet other machines to begin their doomsday missions. The Manhattan Project delivered us to a world where the power of one has become infinitely magnified by ever more autonomous machines. As Loren Eiseley wrote a decade after Hiroshima, amplified by technology, "A mathematical formula traveling weakly along the rivers of the neopallium may serve to wreck the planet."

The atomic pyramid is now a spreading nuclear cone, as the arcane knowledge of a few becomes the commonplace knowledge of the many. Nuclear materials continue to proliferate into the hands of ever more would-be mischief-makers. And our once-primitive robots are becoming more powerful and more autonomous by the day. If a small-yield explosion like Hiroshima were to be repeated now, delivery would be by unmanned cruise missile or rocket, and with an accuracy that would put the 300-foot CEP [circular error probable] of the primitive computer of the Enola Gay to shame.

History shrank to a singularity at the moment of the Trinity test, but quickly expanded outwards to embrace Hiroshima too. It has been expanding ever since, racing into an unknown future at light speed. From the Aioi Bridge, the Peace Park resembles nothing so much as an ancient geologic outcrop, an eroded reef slowly surrendering to a restless sea of change. The Genbaku Dome protrudes like the skeleton of an atomic dinosaur, a fading relic of World War II horrors. The newer monuments of the Peace Park are sedimentary layers preserving memories of the Cold War. Beyond, the waves of commerce have effaced and remade Hiroshima as effectively as any nuclear weapon. It is a town racing away from its history even as it tries to preserve the memento mori of its atomic past. Bits of memory are disappearing forever beneath its inexorable erosive force. Already, one must hunt the alleyways of Kamiya-cho to find trace of the hypocenter, a tiny plaque protruding from the wall of a small clinic. How soon before even this reminder is gone?

Without knowing how I got there, I found myself back by the riverside near the Genbaku Dome. The lovers were gone, the benches empty. But I was not alone. I could sense the genbaku obake, the ghosts of the atomic dead, in the water below. They answered my mute question of the night before, not from darkness but from the leaf-dappled sunlight dancing on the flowing Motoyasu River. "We welcome the lovers, for they honor our lives. Monuments speak only of our death. Before Genshi Bakudan, we also sat by this river and dreamed of the future. Honor us now with resilient, exuberant life. A lover's kiss is a better memorial than all the crumbling cenotaphs and dusty museums. Eventually these buildings will disappear, and the bomb will become a dim and distant memory. But the lovers will always come, and we will be happy."

Chapter 3: Nagasaki

The ghosts of Trinity have a dark humor, and nowhere is it more evident than in Nagasaki. This is a town twice unlucky. Bombed as an afterthought when smoke obscured the Kokura primary, it cannot even claim Hiroshima's distinction of being first to suffer atomic destruction. It is like being the second astronaut to walk on the moon. Everyone recalls Neal Armstrong, but ask who was second, and you will get blank stares. Nagasaki received a full measure of suffering, but remains "that other city" in the history of the atomic bomb.

Trinity's ghosts toyed with Nagasaki's fate from the very start. A faulty fuel pump and rain squalls near Tinian nearly canceled the flight of Bockscar, the B-29 scheduled to drop Fat Man. But after heated discussions and a change in flight plan, Bockscar and its deadly, delicate cargo lifted off into a horizon pierced by lightning. Captain Sweeney and his crew reached their rendezvous point near Japan on schedule, but the rendezvous quickly went amiss. The camera plane briefly appeared and then promptly disappeared in the clouds, and the instrument plane never showed up. After a tense, fuel-burning forty-five minutes, Bockscar flew on alone to its primary target, Kokura.

Tinian's weathermen told Sweeney to expect clear skies, but he arrived to find Kokura hidden beneath a thick smoky haze that made targeting impossible. An earlier incendiary attack thus spared Kokura the fate that had befallen Hiroshima, but Nagasaki's death warrant was written in the smoke that swirled below. Sweeney made three fuel-consuming passes over the city without finding an opening. With barely enough reserves to make a friendly airfield, Sweeney swung Bockscar on a southwards arc toward the secondary target, Nagasaki.

And still Nagasaki nearly evaded Genshi Bakudan, for the cloud-kami were rising around the city even as Sweeney and his crew circled vainly over Kokura. Bockscar arrived over Nagasaki only to find a thick white cloud-carpet below. Knowing that they would have to jettison the bomb before landing in any case, Sweeney's weaponeer contemplated dropping it with a radar fix on Nagasaki. Then at the last moment, glimpsing a tiny bit of city through a cloud hole below, Bockscar's bombardier took control and released Fat Man on its short journey to implosive oblivion.

Sitting on the hill above Sanno Shrine overlooking the hypocenter, I mentally traced Fat Man's invisible trajectory. Intended for Nagasaki's center, Fat Man missed its aiming point by over a mile. The third bomb of the atomic Trinity exploded in searing Pentecostal fire over the Catholic neighborhoods of Uragami. Warriors from a Christian nation had just nuked the largest cathedral in Asia. It is tempting to wonder if Nagasaki's cloud-kami or Trinity's ironic ghosts had nudged the bombardier's hand, for the geometry of the Uragami Valley also ensured that Suwa-jinja, Nagasaki's largest Shinto shrine, was utterly untouched by the blast. Had Fat Man imploded over the intended AP, Suwa-jinja would have disappeared as just so much cedar tinder in the ensuing atomic firestorm.

In contrast to Hiroshima, Nagasaki's most potent symbol of the blast is not a civic building but a religious structure, the one-legged Torii gate of Sanno Shrine. Half of it lies shattered in pieces beside the steep path it once framed, but the half farthest from the blast still stands in poised, gravity-defying balance, its lintel pointing toward the hypocenter like some giant's granite finger. Climbing the slope, we arrived just as an elderly Hibakusha began to tell his story to a class of third-graders sitting on the steps in the Torii's shadow. He had been a junior in high school, working in a plant building kamikaze submarines—coffinlike human torpedoes—when the bomb burst over his city.

The Hibakusha stood facing uphill, a small battery-powered PA system hung from his stooped shoulder. Behind him, the Torii was silhouetted against a curtain of blue sky and cloud. The waning day moon sailed high over its incomplete arch. What did he think of itinerant gaijin like me? Behind us, a second troupe of schoolchildren escorted by another Hibakusha waited their turn. I wondered about these rememberers, their numbers diminishing even more rapidly than the aging veterans of World

War II. Who would tell their story for them when they were gone? Would anyone tell this story at all?

Listening to the Hibakusha, I realized that there is an intimacy to Nagasaki's atomic tragedy that at moments is lacking in the sprawl of Hiroshima. Perhaps it is a matter of size. Nagasaki is a small town compared to Hiroshima. The narrowness of the Uragami valley contrasts sharply with the dense urban landscape surrounding Hiroshima's Peace Park. Here small neighborhoods cling to hilly slopes, sandwiched between river and ridge.

Nowhere was this intimacy more immediate than outside the tiny home of Dr. Nagai, north of the rebuilt Uragami Cathedral. When others shrank from the horror of the injured, Dr. Nagai dedicated the last days of his atom-shortened life to serving the bomb's victims. Touching the cool wood of an exterior wall, I sensed his selfless and untiring commitment in a way that was almost palpable. The Hibakusha carry on in the tradition of his dedication, and even after they pass on, it is clear that this sense of intimacy will linger; it is woven into the very fabric of Nagasaki.

I felt this same intimacy at Nagasaki's hypocenter, a small woodsy park bounded by a tiny river in a ravine below the A-bomb museum. Unlike Hiroshima, Nagasaki has preserved this spot as empty space, and a three-sided black granite monument completes the trinity of hypocenters. It is a place for quiet reflection, or at least it should be. Sitting there, I also sensed something quite different. Unlike the space around Hiroshima's Genbaku Dome, the spirits of Nagasaki's atomic zone are not at peace. One senses an agitation to this place that grows as one approaches the hypocenter. The feeling here contrasts starkly with the comparative calm of Sanno Shrine. This silent green glen is also unquiet and restless.

My unease began when I first walked through Nagasaki's Peace Park. Particularly after the intimacy of Dr. Nagai's home, the scale and impersonality of the park seemed oddly out of place. Like Hiroshima's enormous complex, Nagasaki's park is more a statement against nuclear proliferation than a memorial to Nagasaki's atomic dead. It is a diplomat's garden, ornamented with monumental gifts of dubious beauty, many from regimes now fallen and nations that no longer exist. It speaks to statesmen, not citizens. I recalled the same pattern at Hiroshima, but there the individual and the state co-exist. Here, the individual has been lost in a myriad of political statements.

Stranger yet, it seems that Hiroshima was adopted by the Western Bloc, and Nagasaki by the East. How odd to think we once lived in a world so polarized that we invented two sides to the issue of saving mankind from its atomic self. Reading the plaques of a few of Nagasaki's monuments, I shuddered at their blatant, political cynicism. As if it were not enough for Nagasaki to suffer nuclear destruction, both Nagasaki and Hiroshima also had to struggle to avoid becoming doctrinal hostages in a Cold War propaganda battle. I could sense unquiet ghosts whirling around the corroding sculptures.

Nagasaki's museum finds a happier balance. Smaller, newer, and more artistically refined than Hiroshima's, it presents a moving array of personal artifacts that speak eloquently of human tragedy. Even the mandatory diorama helps draw one into the perspective of those who perished in the blast. The words of the victims say more yet. Dr. Tatsuichiro Akizuki captures the dawning horror of radiation, observing "…concentric circles of death. Concentric circles of the Devil." I recall the surprise expressed by the wizards of Los Alamos as they learned of this unexpected side-effect of their novel bomb. The scientists knew of the danger; several scientists had died from radiation poisoning even before the Trinity detonation, but all assumed that anyone exposed to lethal amounts of radiation would be killed instantly by the blast.

Oddly, it is the newest artifacts in the museum that seem most antiquated. These are the weapons models in the last exhibit hall, devoted to the dangers of super-power nuclear proliferation. Already, it is tempting to look back on those simpler times, when nukes were comparatively large and in the hands of only a few. The next explosion, if it comes, will be dispatched as a much smaller package, by someone other than an agent of a major power. The genie is out of the nuclear bottle, and it is anyone's guess who will free him next.

Yet these nuclear relics spoke to me in an utterly unexpected way. Nagasaki is troubling precisely because it was not the first. Why did the U.S. Strategic Air Forces drop a second bomb? With one city in ashes and word of radiation disease leaking out, what compelled them to strike again, and so soon after Hiroshima? To keep Japan from "recovering its balance" as some strategists argued? To convince Japan that the United States had enough bombs to deliver on Truman's threat of "…a rain of ruin from the air, the like of which has never been seen on this earth"?

This argument is persuasive, but the real answer lies hidden in the terrible, glittering beauty of those deadly missiles. Those who possessed the bomb in turn became possessed by the weapons themselves. Truman did not issue a second order, for his first contemplated more to come. Fat Man was to be but the second bomb of a multitude, in fulfillment of the U.S. Army Chief of Staff's order that "additional bombs will be delivered on the above targets as soon as made ready by the project staff…" The Strategic Air Forces was preparing Tinian to become an assembly line of mass death.

Nagasaki was doomed by the anger of war and the trigger-itch of technological curiosity. Little Boy was a simple device, so simple that the scientists knew it would perform over Hiroshima without a prior test. But the Fat Man bomb exploded over Nagasaki was vastly more complex and more delicate, so delicate that the wizards of Los Alamos felt compelled to test the design atop a tower in New Mexico first. Would the design now work as well in the field? Could one take an explosive-wrapped sphere of plutonium the size of a plum pit, drop it from a plane, and have it perform to deadly specification? Curious warriors wanted to know. And Nagasaki drew the short straw.

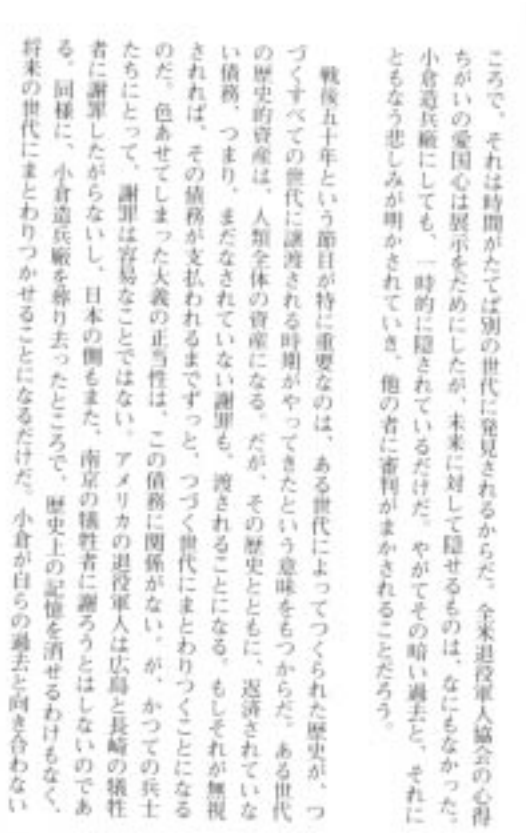
The ghosts of Trinity worked their mischief well. At Trinity, mankind lost its innocence. At Hiroshima, men momentarily surrendered control to the killing machines they created. And at Nagasaki, our very humanity was at stake as men teetered on the precipice of becoming little more than cogs in an inhuman megamachine. Mercifully, there was nothing more to drop. The wizards of Los Alamos had no more bombs to deliver. As the echoes of Fat Man's blast slowly died into silence, mankind collectively retreated from the precipice. Japan surrendered. The bombers stood down. Other, larger bombs would explode, but an atomic bomb would never be dropped again in anger.

We walked back to the hypocenter. A trio of dark crows wheeled over the granite memorial and disappeared toward Uragami Cathedral. I caught myself listening for the ghosts in the green whisper of the wind in the leaves above me. I heard nothing but silence. Here technological men committed mortal sin. It is a place where even the ghosts of Trinity fear to linger.

Chapter 4: Kokura

Kokura was the first city in Japan to be bombed, and as the "primary" for the Fat Man bomb, it very nearly was the last. But wind and water conspired to spare Kokura from the atomic fire that had already visited Hiroshima. A line of storms stretching from the Marianas to Japan separated the bomb-carrying Bockscar from its two B-29 escorts soon after take-off. Bockscar flew on alone and loitered over Yakoshima, vainly waiting for the escorts to catch up. In that lost hour, cloud and smoke settled in a sheltering blanket over Kokura. Bockscar arrived over the city only to find the aiming point utterly hidden in the haze. Bockscar's commander made three fruitless runs over Kokura and then turned his B-29 south and west. Less than an hour later, at 11:02 a.m. on August 9, 1945, Fat Man ceased to exist—and along with it, several tens of thousands of Nagasaki's citizens.

Kokura escaped its atomic fate, but the city that Fat Man once loitered over has vanished more completely than either Hiroshima or Nagasaki. What LeMay's bombers didn't accomplish with conventional bombs before 1945 was finished by the forces of commerce and economic growth in the decades after the war. Gazing at Kokura's skyline from Army Bridge, I realized that little more than the outline of the Murasaki River below would be recognizable to a time traveler from World War II.



ころで、それは時間がたてば別の世代に発見されるからだ。全米退役軍人協会の心得ちがいの愛国心は展示をためにしたが、未来に対して隠せるものは、なにもなかった。小倉造兵廠にしても、一時的に隠されているだけだ。やがてその暗い過去と、それにともなう悲しみが明かされていき、他の者に審判がまかされることだろう。

戦後五十年という節目が特に重要なのは、ある世代によってつくられた歴史が、つづくすべての世代に譲渡される時期がやってきたという意味をもつからだ。ある世代の歴史的資産は、人類全体の資産になる。だが、その歴史とともに、返済されていない債務、つまり、まだなされていない謝罪も、渡されることになる。もしそれが無視されれば、その債務がを払われるまでずっと、つづく世代にまとわりつくことになるのだ。色あせてしまった大義の正当性は、この債務に関係がない。が、かつての兵士たちにとって、謝罪は容易なことではない。アメリカの退役軍人は広島と長崎の犠牲者に謝罪したがらないし、日本の側もまた、南京の犠牲者に謝ろうとはしないのである。同様に、小倉造兵廠を葬り去ったところで、歴史上の記憶を消せるわけもなく、将来の世代にまとわりつかせることになるだけだ。小倉が自らの過去と向き合わない

Army Bridge was the portal connecting the city to the Kokura Arsenal, a sprawling Vulcan's workshop for munitions, poison gas, even viruses. The arsenal was among Japan's largest, and as legitimate a military target as one could find anywhere outside of an active battlefield. Bombs made here rained death not only upon American troops, but also on hapless civilians, from the Philippines to Nanjing. This bridge would have made a prominent aiming point for Fat Man, and, standing on its western buttress, I imagined Bockscar's navigator straining to gain a glimpse of it through the clouds below. I also strained to find some evidence of the Arsenal among the business and apartment blocks before me, but the effort is futile for every last trace of the war manufactory is gone. Children now play where troops once

drilled, and a quilt of light manufacturing plants covers the hidden rubble of bomb factories.

At first blush, this seems as suitable a monument to peace as Hiroshima's Genbaku Dome, an example of swords truly being beaten into plowshares. Army Bridge has been joined by a host of newer bridges stitching the once-military side of the Murasaki into the social and commercial fabric of Kokura. But there is something unsettling about Kokura's transformation. The effacement is too complete, too systematic. A few years earlier, a handful of rememberers struggled to save a water tower from demolition. It was the last structure remaining from the vast arsenal complex, and these rememberers hoped to preserve it as a memory of Kokura's past. They lost. The same city that labored to lovingly rebuild a medieval castle reduced to wartime rubble could not preserve a simple water tower. All that remains of Kokura Arsenal is an empty, weed-choked mound of earth. The "Kokura Bomb Museum," a private exhibit of artifacts from the Arsenal, is maintained on a shoestring budget by a handful of activists. I visited this modest museum with friends who were raised in Kokura, and they were surprised by what they learned about the Arsenal and its role in the war.

Kokura is a city racing away from its dark place in the war, eager to efface evidence of the past and forget unwelcome memories. But Kokura is not alone. Too many of the War's players suffer from an "atomic amnesia," causing them to maximize memory of their own suffering while minimizing their role in delivering suffering to others. The most appalling example of atomic amnesia occurred at the Smithsonian Institution in Washington, D.C. in 1995. Curators at the Smithsonian's National Air and Space Museum had worked for years with Japanese colleagues to prepare an exhibit that placed the bomb in a solid historical context. As planned, the exhibit provided a comprehensive telling of the factors on both sides of the Pacific that led to Hiroshima, and to the consequences of the bomb's invention in the decades that followed.

But the public never saw the planned exhibit because two American veterans associations, the American Legion and the Air Force Association, lobbied Congress to force the withdrawal and suppression of the portions the veterans considered controversial. They argued that Japanese war atrocities and the prospect of American deaths in the coming invasion of Japan more than justified the nuclear destruction, and any-

thing less than a celebration of the bomb's utter rightness amounted to dangerous historical revisionism. The consequence was a scaled-down and amnesia-riddled muddle that focused on the ingenuity of the bomb's construction, the perfidy of the Japanese military, and the bomb's role in saving American lives by foregoing an invasion of the Japanese mainland. Walking through the exhibit, I was struck by the utter absence of any treatment of the human cost of the bomb in Japan—and its consequences for the trajectory of human history.

In retrospect, the veterans' objections are hardly surprising. After all, the oldest of them were in the military when U.S. occupation forces imposed a seven- year ban on photographs and news media coverage of the Hiroshima and Nagasaki bomb damage. Their nuclear amnesia had begun to set in the moment the first bomb was dropped, and only hardened over time. In opposing the Smithsonian exhibit, they demonstrated that they could not find it in their hearts to face the sight of a bomb-ruined lunchbox, or distinguish between civilian victims and legitimate combatants. Worse, the veterans were determined that their children would never see the same images for fear that they might draw a conclusion at odds from that fed to them by their parents.

This same amnesia has crept into every corner of the bomb's history. There is no museum, no place that tells even a portion of the story without distorting omissions. Hiroshima's museum puts a human face on atomic suffering, but it is silent on the role of the Japanese military in drawing the atomic wrath of the United States to Japan's shores. In Los Alamos, the Bradbury Science Museum covers the bomb's development and science in painstaking detail. All but hidden amidst the technology is a small exhibit of photos from Hiroshima assembled by a local group of activists. Next to it, there is a small exhibit of photos of Japanese war atrocities assembled by outraged American veterans. Hardly an invitation to reflection by the casual visitor fortunate enough to see the images.

But even incomplete stories add up to surprising mosaics. The perspective portrayed in the Yasukuni Yushukan—Japan's memorial to its fallen warriors—is as one-sided as anything the American Legion might offer, yet I was as moved by its display of the personal effects of the war dead as I was by the artifacts of the Hibakusha in the Hiroshima Museum. The knowing and pointless sacrifice of young lives broke my heart. I suspect that the intended message was one glorifying "giri-ninjo," that

quintessentially bushido sense of duty and obligation to others no matter the cost to oneself. I left with a more fundamental understanding: in a war of this scale, the helpless victims included youths clutching guns, as much as mothers holding children. Thinking back to the images in the tiny Kokura Bomb Museum, I realized that the victims also included the civilians forced to work in the munitions plants, not to mention the atomic workers exposed without their knowledge to nuclear toxins in Hanford and Oak Ridge.

Fifty years after the bomb was dropped, those who fought and those who suffered are still locked in a struggle. But now it is a struggle for posterity and memory, as each side tries to convince history of the rightness of their version of events. This is a terrible mistake, for history will be its own judge, and information suppressed by one generation will be rediscovered in time by another. The misguided patriotism of the American Legion wrecked an exhibit but concealed nothing from the future. And the Kokura Arsenal is merely concealed for the moment. Eventually, its dark secrets and their attendant sorrows will be revealed for others to judge.

A fiftieth anniversary has special importance because it comes at a moment when the history made by a generation is relinquished to all generations that follow. The historic property of one generation becomes the property of all humankind. Yet with this history also come unpaid debts, the unmade apologies which, if ignored, will return to haunt generations to come until they are discharged. The rightness of fading causes has nothing to do with this obligation, but apology comes hard to warriors: American veterans are as reluctant to apologize to the victims of Hiroshima and Nagasaki as their Japanese counterparts are unwilling to apologize to the victims in Nanjing. Similarly, burying the Kokura Arsenal will not erase its memory from history, but merely preserve it to haunt some future generation. If Kokura does not face its own past, it may end up one day wishing that Fat Man had found its way through the clouds fifty years ago, an unexpected Tenyu, a gift from the gods that in one fearful moment accomplished what frail human memory could not.

Chapter 5: Los Alamos

Los Alamos. The place takes its name from the cottonwoods that fill the deep arroyos cutting into the high mesa on which the weaponeer's labs squat. Oppenheimer selected this place for its wild remoteness, and even though the quonset huts and wooden barracks of World War II disappeared long ago, flattened to make way for a Cold War sprawl of offices, tract homes, and mini-malls, the sense of isolation remains. At night from Santa Fe, one can see the lights of Los Alamos glittering high and alone in the far mountains, a nuclear Potala inhabited by shadowy atomic monks.

The approach to Los Alamos is up a narrow cliff-hugging highway that ribbons westward across the fields and pueblos that dot the Rio Grande river valley. At the lip of the mesa, the road passes an empty guardhouse. A handful of wives and workers gathered near this spot just before dawn on a July morning fifty years ago. Watching toward Trinity, 100 miles to the south, at 5:30 a.m., they witnessed an enormous flash on the horizon, the world's first nuclear explosion. The flash was so great that some feared the entire crew at Trinity must have been wiped out. At Trinity, optimists hoped that the new bomb would end the war with Japan. Idealists prayed that the very existence of the bomb would make itself obsolete by ushering in a world where the consequences of war would be too great for war ever to start again. Realists knew better.

In fact, Fat Man and Little Boy quickly passed into obsolescence, but not because they were too terrible. Rather, they were not terrible enough. The wizards of Los Alamos quickly built new devices that made the bombs of Hiroshima and Nagasaki seem puny by comparison. And in a few short years, the A-bomb's terror was superseded by the greater horror of the H-bomb. Trinity's eighteen kilotons lit the sky and glazed the desert. "Mike," the first thermonuclear bomb,

vaporized an island in a ten-megaton blast, five-hundred times the power of Trinity.

The bombs that once terrified us are now quaint antiques, their defanged casings on view in museums from Los Alamos to Nagasaki. A megaton's worth of suffering can now be packed into a package smaller than that which delivered Little Boy, and compared to the sinister sleekness of today's weapons, the antenna-festooned Fatman seems as archaic as a suit of medieval armor.

Oppenheimer and the other atomic pioneers quickly followed their bombs into obsolescence. Little trace is left of their presence at Los Alamos beyond dusty exhibits in the city's museum, the odd street sign, and a handful of bronze plaques. The small teams of pioneering scientists have been replaced by a vast and anonymous nuclear bureaucracy. As large as Los Alamos has grown, it is now merely one of many cogs in a self-perpetuating thermonuclear megamachine, methodically devising steadily more subtle forms of nuclear cruelty. Nearly a decade after the fall of the Soviet Union, the U.S. military establishment is spending record amounts of dollars to preserve and refine its over-large nuclear arsenal, even as the weapons stocks of its former enemy continue to deteriorate and dwindle in number. Meanwhile, others yet struggle to join the nuclear club, at terrible cost and for no imaginable practical purpose.

Once Alfred Nobel thought that the terrible power of dynamite would shock the world into peace. Two wars later, the wizards of Los Alamos hoped that they would succeed where Nobel had failed. But like Nobel, they overlooked mankind's capacity to accommodate itself to yet newer horrors. Each successive wave of tragedy and suffering merely numbs our collective moral conscience. The strategic bombing of Europe and the firebombing of Tokyo made once-unthinkable mass slaughter of civilians an unremarkable fact of war. By the time Truman and his planners were presented with the option of the A-bomb, its use seemed inevitable. In fact, after the vast sums spent building on the bomb, Truman would most probably have been impeached had he not ordered its use.

But there is a hint of a silver lining in the nuclear cloud. Perhaps Oppenheimer's idealistic wish did come to pass, for while the threat of nuclear retaliation has been a cornerstone of statecraft over the last forty years, the actual use of nuclear weapons has not. The last few decades have been punctuated by one nasty little war after another, and no

shortage of cruelty. But no bomb has been exploded in anger since Nagasaki. The arms race was ruinous to economies and an environmental nightmare, but at least its bombs never found their way to unsuspecting populations. Nukes still serve as potent totems for insecure heads of state, but so far at least, no one seems eager to push the button in anger. Is it possible that humanity has finally found the beginnings of a collective restraint? Five decades of nuclear quiet are grounds for hope, but it is probably too soon to tell.

The struggle to keep the nuclear genie bottled continues unabated; all the while, mankind seems bent upon devising far subtler horrors. Who needs world-wrecking super-bombs when ever-smaller groups of unhappy individuals can threaten with nerve gas, biological toxins, and genetically engineered viruses? Against this backdrop, even the H-bomb seems as quaint and awkward as a catapult. Horrors that once required years of work by entire armies can now be summoned by solitary individuals.

Even if atomic energy is never again unleashed in anger, its legacy will haunt us far into the future. Without the bomb, World War II would quickly recede into history as but the latest in a long line of cruel and murderous conflicts. But this war will stand out, for its cruelty inspired a technology that sawed through the anchor chains of reality. We now know that the comforting solidity of our world is but an illusion. Nudge a few neutrons and matter will evaporate like a soap bubble, transmuted into energy. Nudge the right neutrons and our world would utterly disappear.

Below the mesa's edge, just beyond the last workshop, the cottonwoods still grow as they have for thousands of years. Oppenheimer knew of this place from boyhood summers spent in these mountains. In rare breaks from the race to build the bomb, he rode his horse through the forests around Los Alamos. Walking these canyons, one can almost hear the crunch of hooves on river gravel in the wind-whisper of these trees. If one listens very carefully, one can also hear the ghosts of Trinity in this haunted wood. "Oppenheimer and the wizards of Los Alamos thrust mankind into a new frontier," they tell us, "a frontier of terrible freedom. An infinity of paths lead away from Trinity, some to unimaginable hells, and others to new heavens on earth. Trinity's dark gift is a gift of choice in a world made utterly mutable by the nuclear alchemists. They have passed into our world now, but the gift remains. It is up to you to choose wisely and well."

http://www.saffo.com/essays/roadtotrinity.pdf