

The Manhattan Project

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## ABSTRACT

*The Manhattan Project* is a book of lyric poetry that chronicles the discovery of nuclear energy and its subsequent use as both a weapon and a fuel source. The book is grounded in the aesthetic positionality contained in scholar Joyelle McSweeney's concept of the 'necropastoral', a liminal zone where disparate spaces, such as the classical 'urban' and 'pastoral', become blurred. *The Manhattan Project* examines the enduring impossibility of sufficiently responding to the continuing repercussions of the nuclear age and its post-nuclear contaminants through a kind of 'resurrection' of lyric meditation, further mutated by both formal constraints and conceptual frameworks.

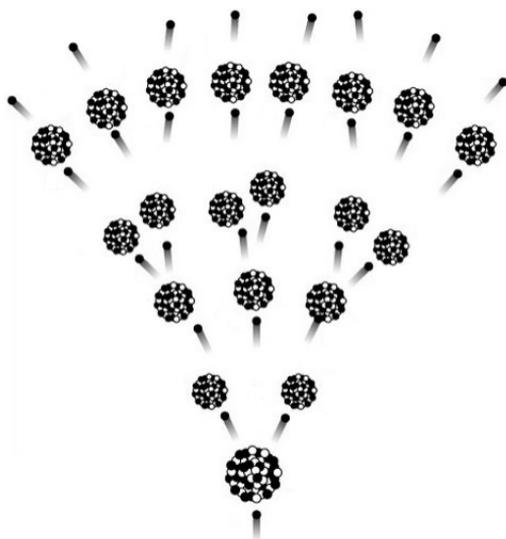
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## THE ATOMS WE CLEAVE



Cruel immortality consumes this iodized  
garden. Clumps of pine shoots penetrate  
the sand-filled mass graves of irradiated

trees, the mourners of a former forest.  
Bony wolves prowl an abandoned church,  
feeding on the flesh their of waning prey.

A graven shade wakes to weave with yarns  
of arterial tissue on her razor wire loom.  
Syringes rust in a pool of ruined tiles. A black

dog stalks a trio of looters. A girl, crippled  
from birth, quotes the book of Revelation.  
From a ring of elegant fungi whose spores

x-ray the night, an incandescent nymph  
springs forth to offer her insoluble kiss  
to the chapped lips of a graffiti artist,

whose rogue logos decorate the ruins  
of a decommissioned nuclear plant, husks  
of images scrawled in metallic spray paint.

The syntax of deep time reverberates  
in nucleic acoustics. Unhearable songs,  
living on the Nymph's unravelling tongue,

implant atomic cryptograms in stray  
genetic phrases. Her eyes shine with  
a dust of suns, a shimmer of malignant

minerals that, when enriched, provide  
the means to transmute human flesh  
into a photo of its shadow. Beyond

the throbbing graves of robots that shoveled  
the shredded entrails of graphite control rods  
from the caving roof of an exploded reactor,

its melted core a portal to the scabbed magma  
of adolescent Earth; beyond necrotic acres  
of pancaked grass, where two-headed

lambs graze, milked for fibers of spider silk;  
there is a glade guarded by hairless faeries  
who protect the tree of death, its branches

sagging with tumorous fruits, their pits aglow,  
their skins glittering with heavy metals. Grisly  
gnomes huddle in burrows beneath the roots

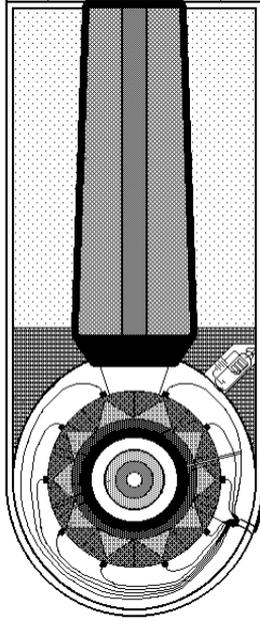
of this mammoth blot of clotted bark. The artist  
tastes no fruit. The dead climb out of his eyes,  
to expose the hoax of his clocks. The sun rises

in the wrong direction, and even through faulty optic  
tissue, the blind bathe in this dawn, bearing witness  
to the bursting of an angel's graceful heart.





# THE ARMS RACE



## BELOW OKLO

Press your ear against a fossilized nautilus  
to hear the hum of this natural reactor.

Below and before the colonial mines, before  
there was fallout, bombs, or shelters,

there was a belly full of light, a lair  
for balrogs, where a granular fuzz

of uranium crystals tickled the feet  
of eyeless dryads, their skin embalmed

by stray ions. They once bathed  
in pockets of superheated water trapped

in porous granite, fed on waves of heat  
from muddled suns whose pungent rays

pickled the tissues of the earth. They drank  
the brutal dew of Styx from crystal goblets,

redirecting rivulets to sustain their shrieking  
stars, whose own songs cut with wild notes

sawed from infernal violins, each burst  
of fission crumpling like a lantern as it drifts

into the maw of an ocean trench. Their lost  
experiments predate us. Pandora's box

unlocked itself, like a forgotten clock striking  
in an empty house, clotting Oklo's depths

with the chimes of crimson choirs, accompanied  
by cruel buglers jealous of the swirling worms

above. Before our hominid ancestors tread,  
sleepless, across savannahs sweet with primal

fears, restless veins of nuclear fuel blazed  
in this georeactor, each Precambrian

burst the dream spasm of a body  
of ore, a radionuclear twitch.

Neodymium dissolved, mired in aching  
heat. Ruthenium threads unravelled

in the raving deep, decay particles caught  
in sandstone, clay, and granite. Thermal

neutrons sundered the surrounding umber  
stone of these hothouse catacombs.

Carcinogenic steam from Vulcan bathhouses  
permeated troughs of liquid heat, where even

molecules boiled, nuclei evaporated. A visiting  
necromancer brought all fossils near the reactor

back to life. Calcified skeletons cracked open their  
stratified tombs to dance in the antechamber

of Earth's first critical mass. Nature was never  
innocent, entrapping hymns within black crystals,  
  
testing her own flesh, carving with water trenches  
for demoniac sparks, twisted fields tended to grow  
  
the tectonic fauna of dark gardens: uraninite,  
pitchblende, thorianite, pegmatite, betafite,  
  
lost volumes from a mineralogical apocrypha.  
The demise of the Anthropocene was written  
  
in these stones. There was a revelation when  
the mines opened, though the miracle was  
  
merely material. Plunderers dove into the earth  
for the spoils of new energy. The virus of humanity  
  
prepared itself for omnicide, realizing that their  
doomsday clocks were slower than they thought.

## **RADIOACTIVITY**

*for Marie Skłodowska Curie*

What need compelled your hands to prod  
elemental embodiments of chaotic decay,  
to tinker with glinting flasks of these vicious  
species of dust? If young Joan of Arc spoke

with god, and burned for their exchanges,  
then what gods communed with you that  
set your bones ablaze, left you delirious  
from necrotic marrow? How many hours,

O dark priestess of Prometheus, did you carry  
test tubes virulent with flameless fires, gently  
slid into the pockets of your lab coats, each  
inch of their fabric unsinged, yet malignant?

The fraying atoms you interrogated co-wrote  
entries in your journals, embedded marginal notes  
between molecules of ink. Reading these pages  
of cursed prose now requires protective gloves.

Samples kept in the drawers of your desk gave  
off faint auras, your will-o-wisp companions during  
winters spent purifying powdered ores. Long  
after the wheel of a cart crushed your husband's

skull, did you remember Kazimierz Żorawski,  
the mathematician whose parents forbade  
their son associate with a penniless Polish girl?  
Years after your death, a certain old professor

could be seen each day, seated before the statue  
of you erected at Warsaw Polytechnic, where  
he lectured. As Red Cross director, you drove  
a mobile x-ray cart across fields laden with

corpses and scorched iron, mending the bones  
of wailing soldiers. You filled hollow needles  
with radon, instantly sterilizing wounds as they  
were stitched, but the book of recipes you cooked

your meals with must now be stored in a box lined  
with lead. The arcane weight of artefacts mangles  
the steady gaze of history, overexposes fantasies  
of clarity with scathing rays. What more is there,

other than chemistry, for any writing to occupy?  
The measure of a half-life is subject to estimates,  
imperfect measurements, and unchecked variables.  
No one can see what has been, nor what is left to be.

## THE WORLD SET FREE

*for Leo Szilard & Otto Hahn*

The cry of a multitude, screaming in the same  
lucid nightmare of light, echoes backward, into

1933, but their voices fail to outstrip the crinkle  
of dying rainfall on a brittle London street, where

Leo Szilard, incensed at Lord Rutherford's brazen  
dismissal of his work, sees the tree of death erupt

before him, from the seed of a buried dream.  
Did he envision what repercussions might

arise from the plucking of its fruit? Was it not until  
that moment at Farm Hall in 1945 when,

as a comfortable prisoner of Operation Epsilon,  
he listened with his colleague Otto Hahn,

to the radio broadcast that proclaimed the dropping  
of the bomb, that his vision broadened, stretching

past the border of complicity? Did grim doubt  
similarly haunt Hahn when, in 1916, he was stationed

in Fritz Haber's chemical warfare unit as a researcher  
of cytotoxic poisons? A year later, at the battle

for Hill 70, my great-grandfather's body  
bore a new variety of shrapnel: a bubble

of chlorine gas was trapped behind his eye.  
In 1938, when Hahn gave his mother's

diamond ring to his Jewish pupil Lise Meitner,  
as a bauble to bribe a German border guard

and guarantee the girl's escape, did the act  
embody the writhing of any mournful ghost,

condemned to spend eternity emptying  
the depthless pockets of its death clothes

at the living poor, who see no spectral coins,  
and receive no gestures of desperate atonement?

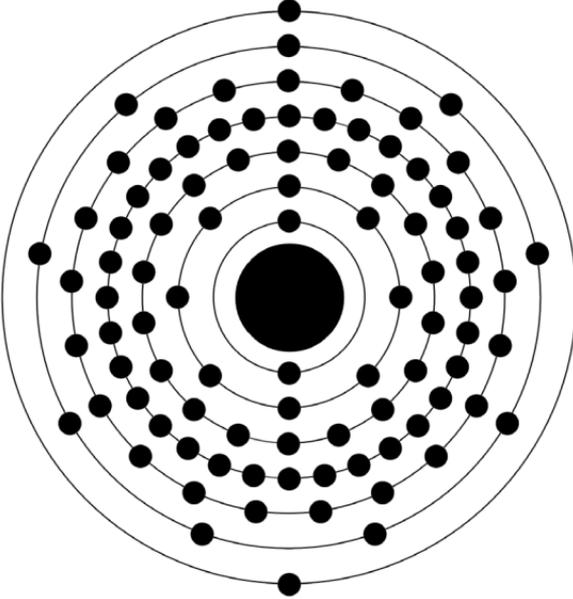
Perhaps Szilard had some inkling, in the fatal  
stillness of that morning, waiting to cross

the street, that the eyes of time were on him  
and no kind of judgment, even if it came,

would scrub his memory of that crossing  
over ragged pavement glazed with rain.

**IDEAL ISOTOPES**

*for Enrico Fermi*

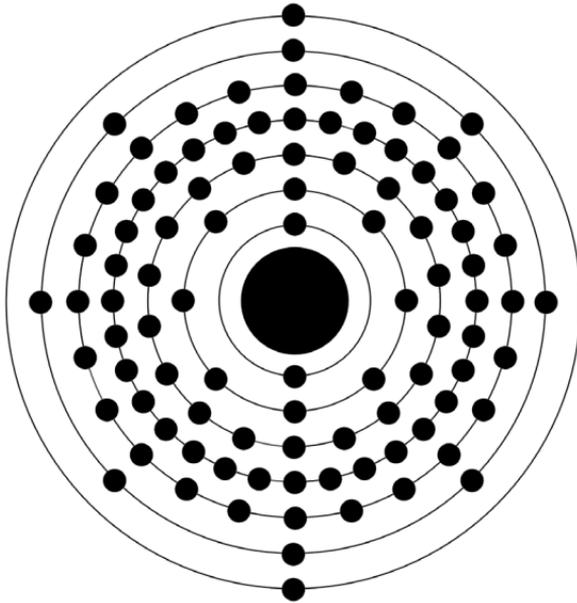


*fig. 1: diagram of an atom of U-235*

## URANIUM 235

Uranium is an actinide metal that appears naturally in ores such as uraninite and torbernite. Approximately 99.3% of natural uranium atoms have nuclei made up of 92 protons and 146 neutrons, making their atomic weight 238. The remaining 0.7% of uranium found in the earth has only 143 neutrons to compliment its 92 protons, culminating in an atomic weight of 235. This second, rarer type of uranium atom is called an isotope (a fusion of the Greek root terms *isos*, meaning 'equal', and *topos*, meaning 'the same place'). These isotopes of uranium 235 are less stable than uranium atoms containing three more neutrons. Because of their instability, atoms of U-235 are prime candidates for atomic fission, or the shattering of heavy atomic nuclei which results in the release of high-energy neutrons, which in turn shatter the nuclei of nearby atoms, resulting in a chain reaction that produces immense amounts of energy. A series of concentric 'shells' of electrons surround the nucleus of U-235, attracted to the positive charge of its nucleus. Figure 1 illustrates the U-235 atom, with its massive nucleus and haze of orbiting electrons. Distilling U-235 from the more common U-238 is difficult, since the uranium atoms are each nearly identical in chemical behaviour.

*We yank the deadly reigns of the four horsemen when we seek to enrich the rage of metals dashed into black crystals, coagulations of chaos that disrupt fragile DNA.*



*fig. 2: diagram of an atom of Pu-239*

## PLUTONIUM 239

Four isotopes of the actinide metal plutonium occur in extremely small quantities in uranium-rich ores, as byproducts of uranium's decay. The vast majority of plutonium on Earth is produced in laboratories. Bombarding uranium 238 with neutrons initiates a reaction which can produce the isotope plutonium 239. Further bombardment of Pu-238 with neutrons produces Pu-239, the most viable isotope for nuclear fission. Pu-239 contains 94 protons and 145 neutrons, making its atomic weight 239. Pu-239 is cheaper to produce in large quantities than U-235, which has led to the element's use in both nuclear weapons and nuclear power plants. The critical mass of Pu-239, or the minimum amount of the isotope needed to invoke a nuclear chain reaction, is the smallest of all nuclear fuels. An 11kg sphere of high-grade Pu-239 is enough to initiate such a reaction, although certain processes can reduce this amount by half. 'Supergrade' nuclear fuel contains 95% or more Pu-239, the remainder being Pu-240, and is used in situations where lower radioactivity is necessary, such as submarines, where crews operate in close proximity to nuclear weapons. Just as uranium is named after the planet Uranus, plutonium is named after the dwarf planet Pluto.

*We tickle the tails of dragons to animate our forges with their flames. We prod the hearts of demons to decipher their rhythms, only to have our own tissues unwoven.*

Acheron, the river of woe, flows past  
Charon's abode. Nearby, gold wolves prostrate  
before their alpha Anubis. A raft  
awaits Aeacus, who describes the fate  
of his grandson Achilles to A Bang, who,  
as Bull-Head master of a grand estate,  
held a banquet for the god 'A', whose crew  
of Mayan wraiths resent their extinction  
at Spanish hands, each conquistador doomed  
by Coatlicue, the snake-skirted matron  
of the moon, to live the final moments  
of their victims endlessly. Aminon,  
gatekeeper of the Ossetians' trench,  
wagers that Apialoovik can't outswim  
Tlalok, and watches as their argument  
erupts. Yonggung Sacha enters the din,  
insulted by exclusion, while Aita  
sighs, bearing witness with his unseen twins  
Hades, Pluto, Orcus, and Dis Pater  
from their tower above the foam of souls  
and clash of bladed fins. Old Barastyr  
scolds his servant Aminon for goading  
the seabound foes, while the lion Aker

rears at Alpheus, who was washed ashore  
by the nautical scuffle. From the blur  
of tar-black waves, Andjety's hand arose  
to grasp the gods bickering in the ichor.  
Aqen, the mouth of time, rallies his throes  
of allies at Andjety's rise: Arawn,  
and Anguta the Mori, Atropos,  
Angelos, Angra Mainyu, Ban Jian,  
Bai Wuchang, Chen De and Cheng De, Ankou,  
and Chitragupta. Cheonjiwang glares  
into a mirrored wall of iron-blue  
vivianite, at forces overdue  
for war, and summons from the glass a noose  
to rival the rope of Asto Vidatu,  
used to catch ascending human spirits.  
Azrael, startled by this act, calls to  
his kin Bao Zheng, and Barons Samedi  
La Croix, and Cimetiere, to wake their droves  
of sleeping banshees and black dogs. The waves,  
now greased with godly blood, disturb Cichol,  
whose mist-soaked groans startle Cao Qing, Bian Shen,  
Chen Xun, and Cai Yulei. They loathe Clotho,  
who quit the fates for his friend Jiang Ziwen,

to aid Jiang's bride Cihuateteo, along  
with Chepi and Cheonha Daejanggun.  
The last two hide Ziwen's beloved one  
beneath where Cocytus's waters flow  
where she bids the Erinyes to summon,  
with shrieking song, St. Patrick's primal foe  
Crom Cruach, who resides in Bull Rock with  
The Dark One, Donn, guarding the sacred souls  
of faithful Gauls, who once fought with Cu Sith,  
the giant wolf whose cries could split the moon.  
Chief Judge Cui decrees martial law, and with  
his roar brings forth the judge Dong Jie, with whom  
King Dong Ji nearly shares a name. Culga  
claw apart their crypts, screeching in the gloom  
their neverending nocturnes, as the bulge  
of the snake Degei's girth erupts, a drum  
beat echoing in the volcanic gulch  
where choirs of Di Inferi still hum.  
Duamutef bellows atop his trove  
of canopic jars, calling to Cui Cong,  
who invokes Erebus and El Tío,  
whose march disturbs Hel, Djall, and Diao Xiao,  
locked in an orgiastic fit below

the knoll that Ghost King Duzi Ren calls home.  
Dullahan, Eridanos, and Gao Ren,  
out hunting near the knoll, awake Fu Po,  
whose thrumming yawn inspires the Guédé  
to launch into a polyrhythmic spree  
with blazing drums. Erio and Guaiwang  
share a frenetic waltz before Hapi,  
who whispers to Februss of disarray  
in the realms of death, an epidemic  
of war heretofore unseen. Sly Freyja  
overhears. She brings news to Daebyeol,  
who bids Danmul Sacha and Ereshkigal  
spy on King Fan Zhongyan, discern his role  
in the unfurling chaos. The King's own  
spy, Han Yi, hears this and alerts Guo Yuan,  
who arranges with Gangnim Doryeong,  
Giltiné, Gorgya, and Hine-nui-te-pō  
to raise a mercenary force. Along  
King Han Qinhu's border, the damned mystic  
of wondering, Fan Wujiu, chants a tune.  
Spectral troops flow from Khagya-Yerdi's peaks  
that pierce the distant dark. High in this gloom  
the Grim Reaper and He Wuchang fast drain

an obsidian carafe of baiju  
at a diamond table in Mot's chalet.  
The vapours from the liquor waft and swirl,  
gossamer threads of reaped abyssal grains,  
fermented near the Horned God's harvest lands,  
pungent fields that Menoetes tend  
with Lemures and Lamia. Some crops yield  
fungi, lichen, mushrooms, and mosses, blends  
of rot inspected by Hunhau. Kou Zhun  
oversees the fermenting of all draughts,  
while Molyz-Yerdi, Liu Cha, and Jia Yuan  
taste each new batch from trinitite sniffers  
before approving shipment to the vaults  
of Iku, Mannanan, Libitina,  
Liu Bao, Lachesis, and Izanami,  
collectors and connoisseurs of the pit.  
The souls of Kong Sheng's spectral infantry  
drink deep, witness to Batiga-Shertko's  
Narts and Uburs marching against Satan.  
A sinkhole opens. The un-stench of cold  
wind spreads, and out crawls Itztlacoliuhqui,  
threading a deadly frost across the wold.  
Out climb Jabru, Li Gong, Lethe, and Ji Bie,

who storm the distilleries to concoct  
vile molotovs, mixing spirits with  
corrosive poisons and venoms they brought  
from the cauldrons of Kisin and Huang Xile.  
On reeking plains, hooded Kumakatok  
use such weapons against rabid Luison  
and hordes of Manes in gladiator's garb.  
Protracted sieges of brimstone castles  
stir up fallout, burnt blood, and mustard gas,  
miasmas crafted by Dartsa-Naana,  
where modern war's dead revisit their last  
choking gasp. Mania and Mantus, clad  
in robes of moth wing perfumed with  
lotus oil, warn Liu Guangzhong of mad  
Keres, and her approaching wrath. Hela  
and Ishtar-Deela charge at Lu Zhongce  
and their colliding blades create a rift  
in space, a door for Jihayejanggun,  
whose troops pour forth like wine. Macaria  
challenges Keuthonymous, one-on-one;  
Huang Shou, Mahakali, Mahākāla,  
and Kherty start a betting pool. Ma  
Zhong captures some Mani from Lampades,

whose banners of flame rain bitter ashes  
upon Maximión as the former  
retreats. San Pascualito gives the rash  
host of his lord respite from marching's norm  
to break their battle-fast. He bids Viduus  
find fodder for a feast fit to adorn  
the tables of soldiers allied with Muut.  
Perched on a gypsum crystal, Melinoe,  
Pana, and Santa Muerte pray for blood.  
Viduus encounters Paowei and Minos,  
and shares in their kill, an auroch of Hell,  
its ghostly flesh the prize of Odin's host.  
The table of Mictecacihuatl,  
and her counterpart, Mictlantecuhtil,  
overflows with benthic fruits, creatures felled  
by Namtar, Morana, and Rong Zhen: krill  
the size of dogs, translucent sharks with eyes  
bioluminous, mermaids caught by fell  
fisherman of Ninsusinak's ilk, sly  
eels with razor tails, octopi  
and trilobites. Nga, Mors, and Nephthys  
join the feast, while Viduus chats with Orphne.  
With a wail of light, Osiris bursts

into the hall. Tables fly, and the god  
demands a portion of the feast. Raised  
from his chair, Ogbunabali cries *draw*.  
His allies, vicious kin from distant lands,  
brandish their weapons. Bands of Mormo shake  
their spears, Nergal unsheathes his blade, Morta  
points her staff, Peklenc prepares an earthquake,  
Qebhsenuel roars, Nenia Dea howls,  
Proserpina spits out a blood-red seed.  
The waters of Phlegethon stall, sour  
waves pouring from the lips of Styx enthralled  
by cauldrons boiling over, frothed with war.  
Rhadamanthus grimaces at the hall  
erupting in antics of wasteful hate.  
San La Muerte sighs. Shi Tong, unphased,  
rattles the shackles of his chain gang. Great  
Seker departs Osiris, wings painted  
with gore, and calls for Sidapa, Shingon,  
Shiwang, Supay, Soranus, and the dread  
Shinigami of Censors Song Youqing,  
Guan Yu, and Wu Lun, terrors of the damned.  
Judge Zi He, braced for chaos, warns Xie Bian,  
master of morning's rage, to clear his lands

in preparation for the brisk collapse  
of what tenuous peace once held the realms  
of death in check, each master of each batch  
of souls content, each land and fortress walled  
but quiet. Some sick spark or rabid match  
struck by a foreign hand set underworlds  
at odds, unleashed both gods and darkling thralls  
in this abyssal civil war. Whiro  
allies with Xargi and Xolotl; mass  
genocides follow this triumvirate.  
Xipe Totec joins the fray. Through a glass  
of red mirrors, Thanatos contemplates  
his move, while Yin Changsheng summons Zhou Qi.  
Yusai outfits his ships with cannons black  
with ancient blood. Judges Wang Fu, Zhang Qi,  
Yang Tong, Xue Zhong, Zhao Sheng, and proud Zhou Bi,  
meet with Zhu Shun, to journey to Yan Luo,  
emperor of the secluded city  
Youdu. Under the subterranean moon,  
Tien Yan offers secrets to Wuluwaid,  
in trade for passage across Varuna's  
tumbling seas. While armies forge their ruin,  
the demoness Vanth soars, her torch in bloom,

seeking the entrance to the fabled tomb  
at Tartarus's heart. Uacmitun  
wakes in this tomb, stirred by a dream of din  
in once-calm waters where the dead were one.  
Tuchulcha and Tuoni storm the twin  
spires of Wu Yan and Wang Tong's prison  
to recruit inmates for berserk campaigns.  
Tusok Sacha, Vichama, and Yao Quan  
counterattack as Yeomra looks on.  
Zhang Heng, Zhao He, Zhou Sheng, and brave Zhen Yan  
bolster the bold assault with forces drawn  
from Yum Kimil, Ta'xet, and Wang Yuanzhen.  
Yama and Wang Yuan bless their able pawns,  
Yamaduta make pacts with Xun Gongda,  
Veles march from the wood of suicides  
and Almas follow suit. In shrouds of flame,  
alchemists that kind Māra despises  
slip past Ghamsilg and Melhun, to a dream  
of mottled stone. A cry from far outside  
the fabled lands and afterlives conceived  
by living minds echoes a neural plague.  
Scant parchments of bark, lost but still believed,  
foretell the obsolescence of the gods

of mortal fears. The universe burgeons  
with unearthly mythologies, beyond  
the borders of each comforting fable  
woven to fill the moments when the fire's  
embers die, and dreamlands beyond locked doors  
tug at the soul's eye. The alchemists find  
their portal. Dagon and Yog-Sothoth await  
each parched soul walking Nyarlathotep's way  
and Azathoth shall snare them at the gate.



## CRITICAL MASS

Under the stands of an abandoned racket court in Stagg Field, the last of a squadron of workers pauses before a mound of graphite blocks enclosed in fresh-cut timber. Sawdust clings to his face.

He wipes his brow and his nostrils twitch at the room's reek of pencils, which he once sharpened *en masse* as a childhood punishment. He hesitates, reaching for the light switch. The basement room becomes

his boyhood bedroom, where in those dreaded moments before fatigue overcomes fear, familiar pieces of furniture would morph, their structures ruptured by shadow. He flips the switch, and the sleeping reactor

becomes an undiscovered temple of Babylonian brick, tainted with the soot of burnt corpses; a shrine of Aztec stone crusted with sacrificial blood; a sunken mass of Egyptian granite stained with squid ink;

the sand-scarred ruins of a Nubian temple, consecrated with fading ichor; the pyre of a Viking warrior giant, petrified in a mudslide during a Celtic counterattack; a forgotten vault of Hell's military

fortress Pandemonium, assembled by demons  
from bricks of compressed crematorium ash  
and sanguinolent mortar; an unnamed outcrop  
of suspiciously angular stone on an Antarctic peak;

a Mayan pyramid replete with apocalyptic glyphs;  
the rusting rubble of Chernobyl; the deadly debris  
of Fukushima; the remains of a Japanese estate  
that endured unblemished for centuries, until

a wave of fizzing sprites of light, jostled from their  
subatomic limbo, swept away its careful order  
like a frustrated player would the pattern of pieces  
from a game board. After the success of the reactor,

the physicists involved added their signatures  
to an empty bottle of *chianti fiasco*, and buried  
the reactor's remains in a concrete sepulchre  
beneath Red Gate Woods. Each year, a choir

meets in Hiroshima, to sing "The Day the Paper  
Crane Flies", its melody similar to a lullaby  
that the last worker to leave Stagg Field heard  
his mother sing for him to blunt the edge of night.

## **THURINGIA**

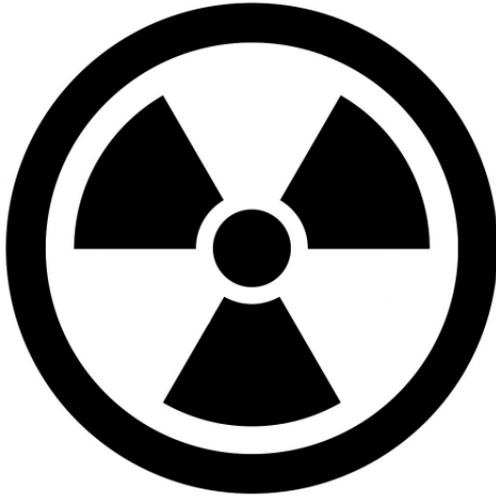
The final test was carried out in Thuringia on March 3rd, 1945 and destroyed an area of some 500 square miles, killing several hundred prisoners of war and concentration camp inmates. The test weapon was never used because it was not yet ready for mass production. There were still problems with its delivery and detonation systems. A small group of scientists was involved, and most of their documents were classified after the men were captured by the Allies. Documents in Russian, Western, and private German archives were brought to Stalin's attention just days after the final test. Reliable sources cited in these

documents saw two huge explosions on the night of March 3rd. German eyewitnesses reported a light so bright that, for a second, it was possible to read a newspaper. This light was accompanied by a sudden blast of wind. Eyewitnesses, interviewed by the East German authorities in the early 1960s, said that they suffered nosebleeds, headaches, and nausea for days after the final test. Measurements carried out recently at the alleged test site confirmed the presence of radioactive isotopes. While they had no master plan for developing atomic bombs, the Germans were the first to successfully test a tactical nuclear weapon<sup>1</sup>.

<sup>1</sup>Ray Furlong. "Hitler 'tested Small Atom Bomb'." *BBC News. BBC*, 14 Mar. 2005.



TRINITY



The night before, there was a lightning storm.  
The bomb, hoisted to the top of an iron tower, tempted  
the anxious sky to ignite the kindling of hubris.

At dawn, the observers sheathed their eyes  
behind protective glass. There was a wave  
of thunder from the tower, and a scream

of light. Some experienced a lingering green  
glow behind their eyes, as if their optic nerves  
had crystallized, fibers of human cells transmuted

into strands of candied opal. In the aftermath's  
aurora, the sky adopted an orange tinge when stray  
electrons mingled with Earth's magnetosphere.

Metallic powders sprinkled from the frothing cloud,  
whose blushing hive of sparks hid microscopic cysts  
of isotopes. Inside this cloud, resurrected warlords

roared, their fuming armies charging through  
geysers of infectious grit, eager to infiltrate  
the future with their half-lives. In this cloud

of unknowing, every atom sang in unison with  
kamikaze rage. Bunker designs and faux structures,  
crushed by later blasts, would deflate into mounds

of rubble like the buildings of a child's toy village,  
kicked apart by grinning siblings. The stunned  
team caught the sun in the desert's throat,

a decomposing strobe of red, lashing  
their tissues with its tail of fire. The test site  
echoed with the crack of Baphomet's whip,

a gale let loose from some lifeless plane of flame  
that hickied their skin with an eerie kiss. Knives  
of light sheered the air and walls of red cracked

amid plumes of violet and blue. The air folded apart  
around the body of the cloud, a celestial wound  
snowy with metallic ash. A seismic ripple described,

in passing, how the bomb's threat would creep  
beneath all discourse of war, promising a Niagara  
of fire to drown each killing voice in the silence

of its peace. From the base of the bomb's chromatic  
cloud, a skirt of noxious cream descended, forming a  
conical gown, in a tableau pirouette of corrosive silk.

Above the gelatinous gaggle of dust (a brain  
of frail, molten lobes), smoke rings blown from  
Lucifer's lips billowed, spreading their toxic thrall.

Less than a month later, a bust of Mary was recovered  
From a cathedral in Nagasaki, her eyes blackened  
by a new species of light, the visage of the atom's age.





# GHOSTS OF LOS ALAMOS



## VALLES CALDERA

They fly you in blindfolded, over wide mountainsides  
drowned in sunlight. The terrain you cannot see

mutates from umber cliffs and dusty shrubs into  
grasslands as gold as yellowcake. Generals scramble

to smother a global war, a manic brushfire fed  
by oiled steel. You are a bubble in their think-tank, their

brute force cadre of tinkerers richly commissioned  
to scour invisible realms for elemental secrets. Amid

a ring of peaks in the Jemez range, smoke seeps from  
fumaroles. Sulfurous mud boils, the saliva of a lock-jawed

caldera. This volcanic grave is a barred door, on whose  
steps they hide the locksmiths that they caught

to forge keys from non-existent molds. In aerial  
photos of the region, shadow-blackened craters

at the caldera's heart form a paw-shaped pattern,  
the footprint of Cerberus. How roughly do you dare

to tug at such a leash? The act of taming remains  
a violent process. Come into the fold and posit ways

in which humanity might coax misfit isotopes toward  
subatomic civil war, goad atoms to renounce their

fragile yet familiar molds. Help us perfect a process of  
atomic distillation and a flurry of precise incisions

levied upon swarms of unseeable, humming yolks,  
innocent nuclei subject to fatal surgery. Eclectic

clouds of electrons struggle to cling to planetary  
bodies of protons and neutrons, while technicians

sweat at metallurgical looms, where they entomb  
and exhume volatile rods encased in concrete. These

graphite mausoleums enable the pursuit of destructive  
constraints. Stray neutrons knock units of their brethren

apart, as if jealous of such cohesion. Warring rogues  
clatter through unstable collectives, shatter weak points,  
  
break symmetry, disrupt stability, rupture and rend.  
Humanity has taught the building blocks of matter  
  
to adhere to our wars. Yet after each violent salvo,  
graceful radiation laces untouched glades, brittle  
  
floral tissues. Subtle waves infest our charted seas  
with martyred particles. Contaminants of varying  
  
gradation settle to invade. Choirs of lyres bloom  
in unison, punitive tones lamenting plutonium's decay.

## THE DEMON CORE

*for Michael Lista*

Amid wind-combed sagebrush and sedge grass  
a top secret hovel appears. Makeshift parties  
in this military nowhere, fuelled by punch  
spiked with lab alcohol, offset late-night

sessions of chalkboard chatter. Talk of death  
toll estimates and explosive yields mingles  
with the cries of coyotes fleeing unseen hunters.  
In the wet season, an incessant murk of mud

swallows sleek automobiles, and hastily  
dug wells often cause bathroom taps to offer  
earthworms. What more fitting a terrestrial Hell  
could green students, idealized by swift learning,

have found themselves invited to? Technical  
assistants heft a rectangular metal case  
into a newly-established lab, a glorified cabin  
where scintillation counters will measure

the tipping point of an orb of plutonium-gallium  
alloy, surrounded by neutron-reflective bricks  
of tungsten-carbide, the whole assembly  
glistening like a mound of treasure plundered

from a sickly king. Undisturbed, the sphere  
remains as cold as a ball of ice incubated  
in a copper cylinder to garnish a chic drink,  
or an unpainted globe submerged in the ether

described by medieval mystics. This heart  
of plutonium, born in response to an enemy  
that employed a heart of iron, catches two  
reincarnated students of Ptolemy's lost spells

in its soul-snaring glare of bright blue light.  
In those supercritical instants, the core doses  
each spectator with lifetimes of sunlight,  
a brightness blossoming apart the living

formulae of their unshielded cells. Afterward,  
the heart will lurk, inert in its pile, waiting  
to become the linchpin of a prosthetic sun  
and boil the sea in a towering fume of froth

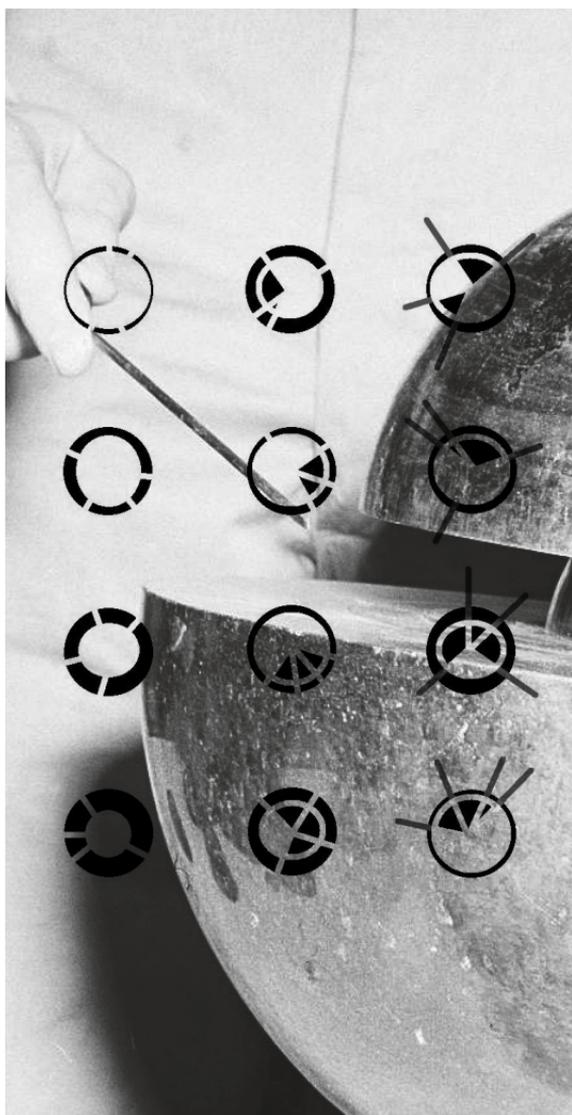
at Bikini Atoll, a flower uncoiling to unleash  
a salvo of pestilent pollen. Science will learn,  
soon afterward, that the era of the dinosaurs  
ended soon after the appearance of the orchids.



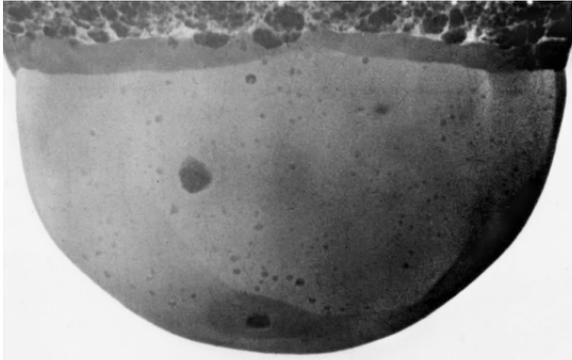


**INDUSTRIAL COMPLEX**

*for Christopher Dewdney*



THE ENCORE FOR DR. FAUSTUS



\* \* \* \* \*

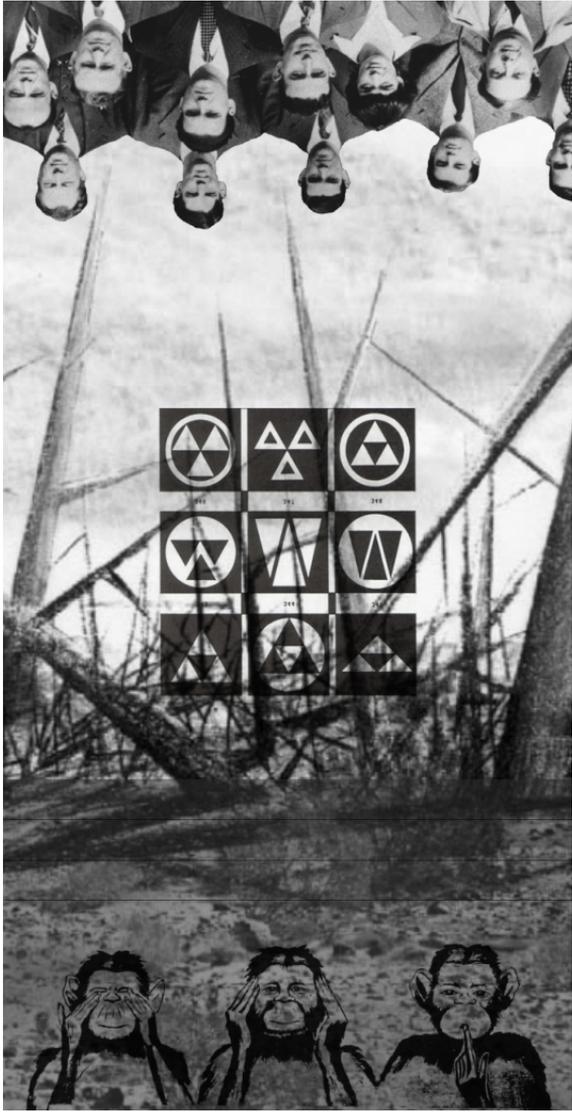
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THE DAWN OF OUR FALL



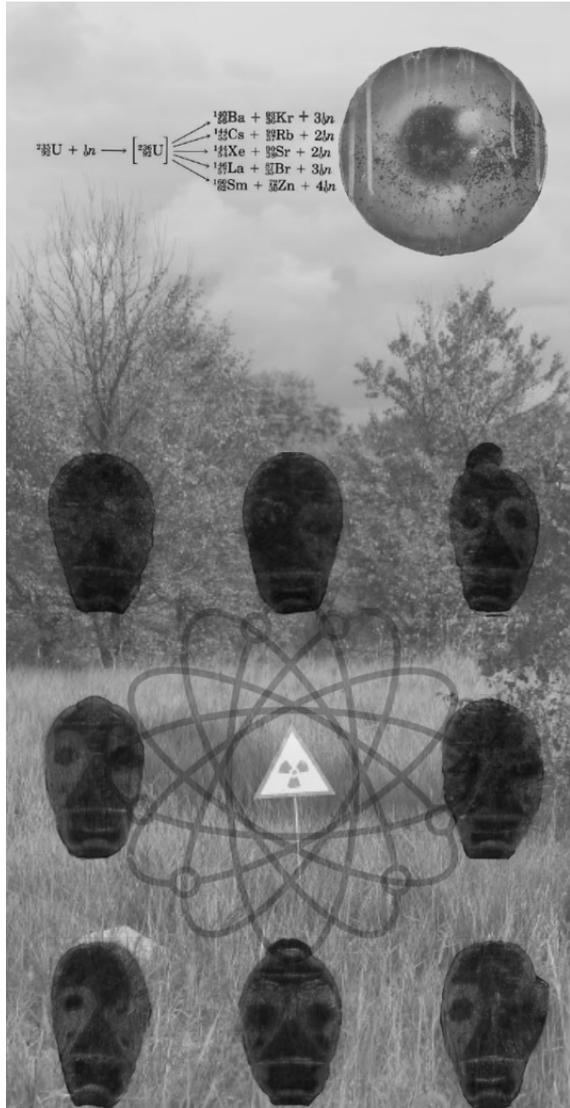
THE SLEEP OF REASON



THE DRAGONS' GRAVEYARD



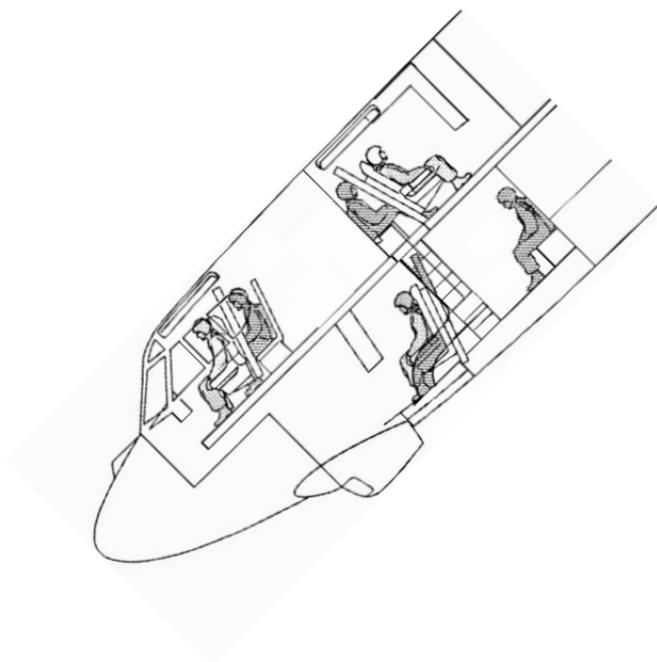
THE COURT OF THE FATES



THE NECROPASTORAL REVERIE



## MILITARY INCIDENTS



## DULL SWORDS

Flint tools fracture and snap in cro-magnon skirmishes. Pig iron blades fail in showers

of shards. Scimitars detach from worn hilts. A blunt scythe fails to fell a bunch of wheat.

A broadsword, mid-forged, clatters to the floor of a blacksmith's hut, its red-hot point warped

by the impact. A pair of butterfly knives succumb to rust in the unmarked tomb of an assassin.

The edge of a glaive, caught in the crevice between two cobblestones, splinters its pole.

An apprentice metalsmith makes a minor error while forging a samurai's katana

and incurs the forgemaster's wrath, exacted with a bamboo staff. A torturer bends the blade

of a prisoner's prized rapier in a vice before  
the swordsman's eyes. The digestive juices  
of an anaconda corrode an explorer's machete.  
With Rome awash in a citywide fire, a gladius  
melts in the debris of a spilt kiln. An avalanche  
in the Swiss alps crushes a custom zweihander  
and its weilder. A pirate's cutlass buries itself  
in silt at the bottom of the Pacific. A shipment  
of falchions tumbles down a gulch, along with  
its caravan. A pharaoh's khopesh cracks,  
improperly packed for shipment to a museum.  
A tarnished katar fails to penetrate an enemy's  
armor. An oxidized kris fuses to its sheath.  
A bolo breaks. A pistol-sword misfires.

## **BROKEN ARROWS**

February, 1950:

Ice collects on the air intake of a British bomber equipped with a mark iv nuclear bomb. The plane jettisons its cargo, which explodes over Alaska's Inside Passage. Canadian authorities are not told what kind of ordinance the bomber was carrying.

March, 1956:

A Boeing stratojet leaves Florida's MacDill airforce base, carrying two containers of weapons-grade nuclear material. While the material onboard could not have caused a thermonuclear explosion, neither the jet, nor its crash site or debris, are ever found.

February, 1958:

A fighter plane collides with a B-47 carrying a mark xiv nuclear bomb, which is jettisoned. The bomb, still lost in the Wassaw Sound, should have been equipped with a 'dummy core'. Congressional testimony from former defense secretary W.J. Howard in 1966 claims otherwise.

March, 1958:

A Boeing stratojet leaves Hunter airforce base, carrying a coreless mark vi nuclear bomb. The pin that locked the bomb's harness fails to engage, and the bomb falls on a playhouse, nearly killing two nearby children, and creating a 70-foot crater.

January, 1961:

A B-52 stratofortress, carrying two mark xxxix nuclear bombs, crashes after suffering a fuel leak. Both bombs land without detonating, however only one of the four safeguards for each bomb remains intact. Much of the nuclear material from one bomb is non-recoverable.

March, 1961:

A B-52 stratofortress carrying several nuclear weapons runs out of fuel when its crew, some of whom were prescribed amphetamines to combat fatigue, refuses an emergency refuelling. The aircraft crashes, but none of the nuclear weapons detonate due to safety devices.

January, 1964:

The vertical stabilizer of a B-52D carrying two nuclear weapons snaps off in a blizzard. The aircraft crashes in an Elbow Mountain meadow and three crewmen die. The bombs are recovered. Investigators learn that both the navigator and the tail gunner succumbed to exposure.

December, 1964:

A B-58 attempting to take off from Bunker Hill airforce base skids off of an icy runway, colliding with an electrical box. The aircraft catches fire, and the nuclear weapons onboard are scorched. Radioactive contaminants released by the weapons are confined to the site and removed.

December, 1965:

An A-4E skyhawk falls into the sea from its aircraft carrier, during a training exercise in Subic Bay, near the Phillipines. The plane, along with its pilot and the B43 nuclear bomb aboard, are never recovered. The pentagon releases no information about the loss of the aircraft until 1989.

January, 1966:

A B-52G bomber collides with a KC-135 tanker while refuelling in mid-air. The tanker explodes and the B-52G crashes. The bomber's cargo, four Mk28 hydrogen bombs, remains onboard. Conventional explosives in two bombs detonate, littering the crash site with plutonium.

January, 1968:

A cabin fire in a B-52 bomber prompts its crew to parachute to safety. The bomber crashes in Greenland's North Star Bay. Conventional explosives detonate in all four of the bomber's hydrogen bombs. Although a clean-up is performed, much of the radioactive material from one bomb is not recovered.

September, 1980:

While performing maintenance, a technician accidentally pierces the fuel tank of a Titan-II nuclear missile in silo in Arkansas. The silo explodes. Conventional explosives in the second-stage portion of the missile's warhead detonate. The warhead's failsafes prevent a loss of radioactive material.

## **BENT SPEAR**

August, 2007:

At Minot airforce base in North Dakota, personnel mount six AGM-129 nuclear missiles to a B-52H heavy bomber. The warheads were intended to have been removed from the missiles, but proper handling protocol was not followed. Four commanders and several personnel were disciplined.

## EMPTY QUIVERS

With precision, an obsidian arrowhead  
nicks the finger of an amateur fletcher.

A bowstring snaps, whipping backward  
in a blinding lash. A batch of bows, their

wood mistreated, fail to bend. The treated  
leather of an archer's quiver dissolves

in a family crypt. Straw targets, packed  
too loosely, allow arrows to pass through

them, injuring a passing squire. The head  
of a legionnaire's spear detaches in mid-air.

The firing mechanism of a crossbow  
jams. Harpoons bounce off of the blubber

of a whale. Ballistas burn. A slingshot  
snaps. A ninja drops a throwing star,

blowing her cover. A longbow, enshrined  
in a private collection, turns to charcoal  
in a fire set by a pyromaniac. Throwing  
knives from an ancient battlefield shatter  
under a farmer's plow. A weathered stone,  
once thrown from an ancient sling,  
becomes the centerpiece of a zen garden.  
A cannonball barrels through a suburban  
neighbourhood, escaping an experiment  
on a nearby firing range. A musket ball  
explodes in its barrel, embedding shrapnel  
in the eyes of a union soldier. A minigun  
overheats, its barrel glowing molten red.  
A luger jams, foiling a suicide attempt.

## FADED GIANTS

With a fable-worthy swing, David blinds  
Goliath with a stone held in a homemade  
sling. Later, Moses slays Og, King of Bashan.  
Species of Nephilim, angelic half-breeds

who escaped Noah's flood, wither away  
in the windswept corners of defensible desert  
kingdoms: Anakites, Emmites, Amorites,  
and Rephaites. Their bones evaporate

in heavenly reclamations. Gogmagog  
flaunts his bastardized name in the hills  
of Alvion, until Corineus heaves him  
from a cliff. Joshua banishes Anakim.

Uj-ibn-Anaq, who stood knee-deep  
in the open ocean, slips and drowns  
in the Mariana Trench. The Ana, artisans  
of human lifespans, succumb to cancer.

Daityas fall before the gods they fought  
in jealousy. The Si-Te-Cah experience total  
societal collapse, driven to cannibalism  
by human foes. A snakebite finishes Orestus.

The body of Ajax resurfaces, each kneecap  
the width of a discus. Odysseus blinds the Cyclops.  
Heracles defeats Antaios. An oil spill smothers  
the last of the fifty-headed Hyperboreans.

The Laestrygonians commit ritual suicide.  
Odin and his kin kill Ymir, who was born  
from droplet of meltwater hanging from  
a poisonous icicle. Kerlig the hag laughs

herself to death. Fafnir morphs into  
a hoarding dragon, a ripe target for Sigurd.  
Freyja retreats to avoid a celestial  
civil war. Neringa's heart gives out

in a contest with a dragon-fighting  
Isopolini. Paul Bunyon, forced to eat  
his ox, chokes on a bone. A mortar shell  
blows the Bergmönch to bits. Antero

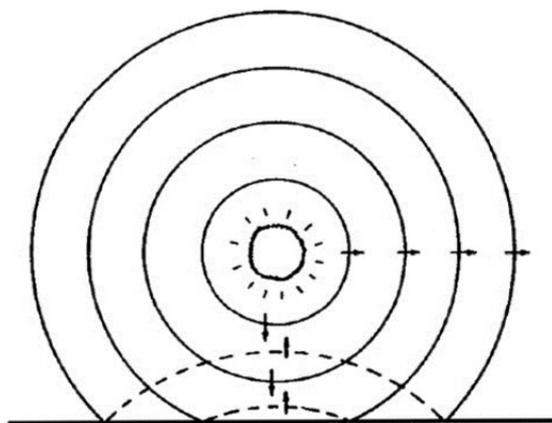
Vipunen, the giant shaman, relinquishes  
the three words of a powerful incantation  
to the god-hero Väinämöinen, after the hero  
opens his grave and skewers him with stakes.

## **NUCFLASH**

because one sun  
was not enough



## RAIN OF RUIN



## CLEAR SKIES

We

belong to the

wind

of a late

dawn

a

Bomb

touches

target

her

and

We turn

to

smoke

groping for words

we

live

on



## TESTIMONY

There was a flash, like a thermal lance of magnesium. White clouds spread out from the glare, a morning glory blooming in the sky. There was a blast

of steam. I felt weightless, as if I were an astronaut. I was blown into another room. When I regained consciousness, I found myself in the dark. I was caught

under something which prevented me from moving. I thought maybe I was having some kind of nightmare. The dust was rising and something

sandy and slimy entered my mouth. My clothes had turned to rags. Thinking that my house had been hit by a bomb, I removed the red soil

and roof tiles covering me. It was  
as if a box of matches had been struck  
by a hammer. It smelled like a volcano.  
I heard people crying for help

and for their mothers. The cries  
were coming from underground.  
There was a sheet of fire in front  
of me. A whirlpool of fire approached

from the south. A tornado of flames,  
spread over the width of the street,  
approached from Ote-machi, burning  
my ear and my leg. I didn't notice these

burns until later. What impressed  
me strongly was a 5-or-6-year-old boy  
with his right leg cut at the thigh.  
He was hopping on his left foot

to cross over a bridge. After a while,  
it began to rain. The rain was black.  
The fire and the smoke had made  
me thirsty and there was nothing

to drink. I opened my mouth  
and turned my face to the sky. Maybe  
I didn't catch enough rain, but I still  
felt thirsty. The fire didn't subside.

The river was filled with dead people  
and with survivors who came there  
to seek water. I could not see  
the surface of the river. I took care

of the people around me by using  
the clothes of dead people as bandages.  
Hiroshima was covered with only  
three colours: red, black, and brown.

The fingertips of corpses caught fire  
and the fire gradually spread over  
the bodies. A light gray liquid dripped  
down their hands, scorching the skin.

I saw the father of a neighbouring  
family standing almost naked. His skin  
was peeling off all over his body  
and was hanging from his fingertips.

I tried to talk to him but he was  
too exhausted to reply. After the bombing,  
I felt paralyzed whenever I saw the sparks  
made by trains or lightning. At home,

I could not sit beside the windows  
because I had seen so many people  
wounded by pieces of glass. I sat  
with the wall behind me for ten years.

## OPERATION EPSILON

I wonder whether  
there are microphones installed here?

With a bit of cunning, we may  
get something out of this.

They are hiding us from their own people  
and that is the amazing thing.

They have money  
and in consequence have time.

We will certainly have to work together  
with the Anglo-Americans. No one  
has any money in Germany.

I would have no pangs of conscience  
in making neutron sources for the Americans.

We will have to pay for having been here.

The day before I went away I said to my wife

"I suggest we commit suicide".  
I had reached that stage then.

It is the future that worries me.

For the sake of the money, I should like to work  
on the uranium engine; on the other hand,  
I should like to work on cosmic rays.

This is *the* chance to earn a living.

Once I wanted to suggest that all uranium  
should be sunk to the bottom of the ocean.

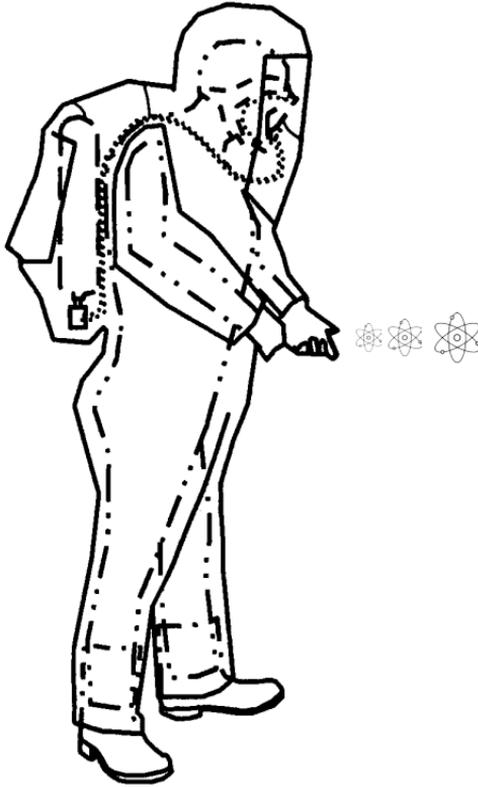
I always thought that one could only make  
a bomb of such a size  
that a whole province would be blown up.

I thank God on my bended knees  
that we did not make the uranium bomb.

What do you think will happen to us now?



# CONTAMINATION



## **CHRISTMAS ISLAND**

*for Ted Blackwell*

At Christmas Island  
I saw three atom bombs being dropped.

They gave us photos of the tests,  
which I have somewhere.

We had a routine. Some would have  
anti-flash goggles and sunscreen.

You had to turn your back, kneel down,  
and hunch over. Like when you're a child

and you press a flashlight to your skin, you could see a red glow and the shadow of your bones.

There wasn't a mushroom cloud. It was stranger than that, this glowing mass climbing through

the air like a ball of serpents. It burned the sky for three days, blinding all of the birds on the island.

It was only when their chicks hatched that the birds could see again.

## PLUTONIUM VALLEY

*for Craig Dworkin*

Alkali accrues in lands where rain refuses  
to fall, where wayward pools of brine

evaporate, splitting planes of hardened  
clay with radial cracks. Brittle crystals beard

the hardpan rims of ancient lakebeds,  
legions of salt writing into the earth

with sharp but fragile letters. Colonies  
of dormant halophiles huddle in the long

drained tributaries of Styx, alien archaea  
thriving on thin films of saline. Water

leaves behind the minerals it cannot carry  
to the clouds. Golems disguise their clastic

bodies in the natural rubble of barren hills,  
glare at military personnel from the mirrors

of their dreams, sand looking through sand.  
The troops build façades in this wasteland,

each set of phantom dwellings an offering  
crafted for each bulb of flame. Tall flowers

of fluorescent smog seize the helmeted  
masses, poorly braced for awe. Those

standing drop to their knees, mach fronts  
shuddering the ground. Branches of thunder

spread, leaving lines of Joshua trees  
afame, like the fodder of a Pagan rite.

Observers in Vegas attend bomb parties  
at dawn on hotel rooftops, breakfasting

in the distant glow of hydrogen fusion. Crystal  
glasses sing with the resonance of every blast.

## THE EAST URAL RESERVE

Pine needles acidify the soil  
in the shadow of a spruce, a profaned  
radius fit only for alkaliphilic flowers.

Language profanes the pages it stains  
with imposed meanings, low notes  
in a droning symphony. The decay

of actinides and lanthanides requires  
millennia to complete. The slow crumbling  
of bloated atoms, not unlike cardiomegaly,

stresses all surrounding life, each clan  
of cells subject to ceaseless rebellion  
from an unparchable fount.

The bodies of irradiated heroes await  
dissection, pieces in a macabre museum,  
their near-naked limbs slack, yet alive

with mutagenic heat. The more deftly  
a poison hides, the more insidious each  
belated fear becomes. Strange meetings

in a sickened system threaten to sour  
Soviet rivers, corrupt the sacred veins  
of the Motherland. The ever-faithful

ritual of radiation whispers, in each  
fistful of hail smattering the pale  
miles of Siberia, in the perishing

air of Cossack heights, a blessing  
for untrodden meadows, the gift  
of humanity's enduring presence.

The unfailing obituary of *Homo Sapiens*,  
resides not only in the cargo of fragile probes,  
but embossed in the clays of every test site,

in core samples yet to be extracted,  
and in the genetic records of affected fauna.  
For decades, joint cleanup efforts fail

to remove the semantic weight of particles  
of powdered sunlight from remote  
barrows dug to stash enriched caches

of plutonium. Such residue remains  
woven into each new snowfall. What  
wayward snowflake may contain a frozen

grain of oblivion's brine and dissolve  
on a child's tongue? What bells will roar  
at the making of such fatal inscriptions?

## THE ARGONNE INCIDENT

Three lead-lined coffins, shipped  
to their respective funerals, protect  
the mourners from the dead and spare,

momentarily, the Earth from the burden  
of decay embedded in irradiated bodies.  
If custom still dictated that a pair of coins

be placed on the eyes of the deceased,  
would they too become enveloped  
by the same curse of livid atoms?

The simplest flicker of inattentiveness  
caused by some stray thought or memory  
wandering through the mind, a bar

of notes from a childhood song, the ghost  
of your favourite ice cream flavour, a notion  
of some ridiculous love that never was,

and never would have been, might open  
the door for death. In this case, prompt  
criticality from a control rod withdrawn

too far, gave rise to a wraith of steam  
known as a water hammer, which hurled  
a twenty-six thousand pound reactor

two meters into the air. A shield plug pinned  
one man to the ceiling, a searing spear  
tossed by Belial's ilk. Investigators sifted

through logbooks, with their best questions  
prepared. Did corrosion or wear cause  
the rod to stick, and prompt too harsh

a pull? Was sabotage a possibility,  
some hatred between the three  
that seethed beneath the surface,

some affair or grievous injury left  
to enrich itself, uncontrolled, until  
it went supercritical, erupting in that

single motion, a freak murder-suicide?  
The most dreaded conclusion admits  
to a mistake free of the comforts of intent.

## THE HUMAN FACTOR

A flood of corium sludge bores through  
steel, lead, and concrete with fleets

of subatomic jaws, chewing and subsuming  
whatever substance it happens to touch.

Frantic employees fiddle with inoperable  
equipment, relying on inaccurate dials,

as others compute the radius of the potential  
blast. Citizens are herded from their homes

under the un-tunes of sirens and the clarions  
of alarms. Megaphones blare, protestors

resist, news anchors swarm toward a story.  
Less than two weeks prior to the partial

meltdown, the film *The China Syndrome* depicts an identical event, and even

mentions Pennsylvania, the unfortunate state where Three Mile Island resides.

A single, ambiguous indicator light and a poorly-placed pressure gauge

set a cycle of assumptions in motion. Each operator remains soundly trapped

by seemingly infallible tools, repeating ineffective procedures with increasing

frustration. The reactor only cooled after a fresh team arrived to replace the old.

## THE ELEPHANT'S FOOT

*for Joyelle McSweeney*

Draped in red and gold, the Soviet  
submarine K-19 awaits its christening.  
Russian officials ignore tradition,

and a man, rather than a woman,  
releases a champagne bottle tied  
to the end of a pendulum of rope.

The bottle fails to shatter against  
the submarine's steel hull, an insufficient  
omen for the horrors ahead. No amount

of prayer will heal the eyes of those  
blinded by the radiation leaking from  
a shoddily-assembled reactor, repaired

multiple times under intense duress,  
miles below subarctic waves. In such  
conditions, the mind becomes nothing

more than a cerebral oven of radiation,  
barely able to hold the image of a lover  
in its frail and failing tissues. What ill luck,

that those living under a system so stubborn  
should endure a procession of such insidious  
reminders of the costs of harnessing

the atom's arcane power. Some sorcery  
of forces must have conspired to impart  
so harsh a lesson on so hardy a people.

The ghostly lake shoals of industrial  
Hamlets present rocky beaches to the curious  
tourist, while various institutions offer

guided tours of Pripyat, and the zone  
surrounding the Chernobyl plant. Embark  
on this excursion, but remember to burn

the clothes you wore when the tour ends,  
since you have no way of knowing what  
may have found its way to the thresholds

of your skin. As you pass the last military  
checkpoint, your appointed guide  
will remind you that to stray too far

from your group incurs the harshest penalty.  
You pass through the gate, and the spell  
begins. Some part of you will never leave

this place, and vice-versa. The narrow road  
deteriorates. Rabbits drift across cracked  
asphalt, grazing on grass and lichen, sponges

for belligerent isotopes. What leaves remain  
seem to leer at your intrusive caravan, as if their  
every cell was comprised of a multitude of eyes.

The trees detest the leaves they toss, their  
nakedness a stark objection to the chromosomal  
origami performed by bastard generations

of rogue heavy metals. Spear gangs of marching  
grass patrol the edges of the road. Through the bars  
of starving trees, swamps rich with atomic rot

peek through the tragic splendor of another  
miscarried spring. What sap sleeps in the trunks  
of these diseased woods? What honey waits

in globulant hives? What fungi run amok among  
networks of roots? The road briefly becomes a lagoon  
of asphalt shards, jostling you from contemplation.

As the spell decelerates, the curse settles. Photos  
taken by the first journalists were exposed  
to such high radiation that the negatives

turned black, an auto-censorship. Even vintage  
maps of the area remain dangerous to handle.  
When the reactor blazed, fireman fought

the flames, but in such otherworldly heat,  
their water only broke apart, adding hydrogen  
to the exposed maw of the roaring core.

Their spectral faces, gnarling at the aura of a spilt  
atomic kiln, arrest you as the caravan continues  
past abandoned high rises, their walls fluttering

with dying life. Inside one such building,  
your guide explains how intrusive photographers  
have repositioned debris in order to compose

more poignant snapshots of the tragedy,  
unearthing objects that might have remained  
buried, or placing fraying children's toys on beds.

You wonder how words might be rearranged,  
to artfully emphasize or ironically detract  
from such images of unfathomable misery.

The weather changes. As you approach the edge  
of the vigilant lid built to entomb the first  
crumbling sarcophagus of concrete to cover

the reactor, the *tut tut* of rain on the corrugated  
roof of the giant lid reminds you of a funeral  
that featured rain, the coffin smattered with

droplets as pallbearers hefted the polished  
construct, designed to sterilize death,  
into the hearse. Any smiles brandished

during such rituals dribble like paint  
too heavily applied to the face of a doll.  
As you pass the metallic arch, the dead

reactor rises from behind the black water  
of rolls of undeveloped film, a cathedral  
of rubble under a thinning moon.

Your guide points out that, in order  
to prevent the contamination of an aquafer  
that leads to the Black Sea, workers dug a tunnel

beneath the ruptured core as its slobbering  
magma crept toward them. The labours  
of the slaves of Menelaus come to mind.

The slaves carved a labyrinth for the king's  
dark beast, half man, half bull, a national  
disgrace hidden at the expense of the subjects

of the state. Warped by their task,  
the excavators stumbled back into the light,  
each sore with the same menacing contagion.

An accidental sprinkle of contaminated sand  
on your tongue could trim a decade  
or two from your lifespan. The makeshift

miners dug without protective gear, shirtless  
and maskless. They drank water from open  
bottles, in that Hellish sauna of frenetic atoms.

On the roof, a problematic litter of graphite  
debris stalled all other cleanup operations.  
After robots failed to clear the detritus, humans

were alternately commissioned to collect  
the insanely radiant fragments with shovels  
and lead vests. These volunteers, christened

'bio-robots', enjoyed the same free vodka  
given to those selected to act as 'liquidators';  
brigades of such patriotic youths removed

radioactive dust, and patrolled the countryside  
with rifles, killing cats and dogs, whose fur  
acts as a flytrap for radioactive debris.

For a moment, you try to picture winter  
here, hoarfrost on scored mortar, fields  
of snow as quiet as marrowless bone.

The sun breaks down for the day, with  
one last, incendiary breath. The sky flushes  
with a lover's blush. You lie, suspended

somewhere between guilt and serenity.  
The noxious stalks of nearby moss puff  
out a deadly incense. Death's coat

has brushed against your own. Iodine  
cleansed your childhood wounds, but slightly  
modified, it has deprived a generation

of its basic health. You wrap your exhausted  
heart in a hotel duvet, and its familiar  
yet eerie smell escorts you to a dreamless sleep.

**CAVEAT CLEPTA**

*for Darren Wershler*

*Corrosion en repose* rules minefields  
of miscellaneous slag that, when  
explored, will explode softly

inside you, and in days will cause  
your body to fail. Quizzically, you  
stumble, ambushed by a foreign

malady. You scoop a glowing blue  
powder from the inside of a stolen  
machine. You share the novelty.

A friend offers some of the bright  
substance to his daughter. The toddler  
decorates her flesh until it glows.

## **RISING WATER**

The elderly bow to the young, resigned  
to preserve the growth of trees that they

will never see grow tall enough for shade.  
They journey to where Geiger counters peak,

to where the air twitches with subtle corruption  
and the sea whines with seeping confusion.

Birds worry in their nests, while the restless  
moon tugs at the bedsheets of the Earth.

In the most contaminated shreds of space,  
the volunteers remain serene, neither rushing

nor hesitating. They fret over no wicked surprise  
that might drain fast their well-fermented

mental cask of past experience. Battered  
by the tender storm of time, they wear

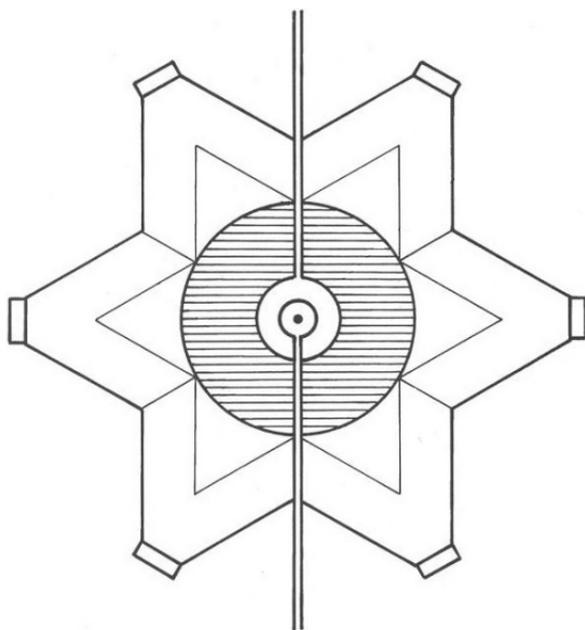
the humblest smiles, approaching the site  
of a triple-meltdown. Escaped particulates

snarl from within the blood of the affected  
populace. Dead wasps, embalmed with pollen,

drain from declogged eaves troughs, their limp  
bodies as bright as soggy warning flags.



# DOOMSDAY MACHINES



## SALTED BOMBS

Scabrous scribes rave at the advent  
of doomsday. Scavengers scrape radium  
from watch dials, extract cesium from stolen  
lab samples, raid factories that manufacture

smoke detectors for their americium, and  
dismantle glowing rifle sights for thorium.  
Cell by cell, each dream degrades into  
a fractured simulacrum. The vigilant heft

the remnants of their blasted hopes  
into shallow ditches, but the pieces burn  
with supernatural fire. Unseeable flames  
devour their devoted hands. The dour

immortality of death endures, amid  
retaliating grass, within the changeless  
grins of irradiated billboards, and in each  
cringe of failing stone. Nests of rebar

rise from pools of screws, cloaked  
in a burning mist of livid decay. Every  
well brims with water sore with iodine.  
The faces of a drowned warriors frown

at bony fisherman from the carapaces  
of Japanese crabs. In the expanding night,  
Artemis waits to soothe each fevered soul,  
to strike with her winter's graceful whip

of frost, a mother's damp cloth forced  
on a burning brow, the gesture severe  
yet gentle. To be dead is not enough  
to avoid such love. When her time arrives,

she will salve each wounded chemical  
text, reset all clocks, fill in each fissure  
split and splitting, reconcile each division,  
wipe aside each unresolved conflict,

each unrevised error, each microscopic  
stillbirth, each contorted nuclei. The forests  
can afford to wait, but can enough ragtag  
bands of families endure, scattered across

Yugoslavian hillsides, sheltered from black rain  
by the sculpted arms of abstract cenotaphs?  
They find refuge in the mouths of ruins, on whose  
concrete tongues they parlay with starvation.

## ANTIMATTER

a titan term  
it meant art  
i rant at met  
mite ant rat

nit matter a  
titan tamer  
at a trim net  
met in attar

taint me art  
emit tan tar  
at trite man  
rant at time

taint a term  
art meant it

## STRANGELET

letter sang  
letters nag  
gentle arts  
largest net

let strange  
sleet grant  
tenter slag  
gentle star

last regent  
stag relent  
largest ten  
antlers get

nettle rags  
tangle rest



# DESTROYERS OF WORLDS

*for Moez Surani*



## **UNITED STATES**

*Current Stockpile: 6,800*

Alberta  
Crossroads  
Sandstone  
Ranger  
Greenhouse  
Buster-Jangle  
Tumbler-Snapper  
Ivy  
Upshot-Knothole  
Castle  
Teapot  
Wigwam  
Project 56  
Redwing  
Project 57  
Plumbbob  
Project 58  
Project 58A  
Hardtack I  
Argus  
Hardtack II  
Nougat  
Sunbeam  
Dominic  
Fishbowl  
Storax  
Roller Coaster  
Niblick

Whetstone  
Flintlock  
Latchkey  
Crosstie  
Bowline  
Mandrel  
Emery  
Grommet  
Toggle  
Arbor  
Bedrock  
Anvil  
Fulcrum  
Cresset  
Quicksilver  
Tinderbox  
Guardian  
Praetorian  
Phalanx  
Fusileer  
Grenadier  
Charioteer  
Musketeer  
Touchstone  
Cornerstone  
Aqueduct  
Sculpin  
Julin

## **RUSSIA**

*Current Stockpile: 7,000*

First Lightning

Joe 2

Joe 3

RDS-4

RDS-5

Joe 4

RDS-9

RDS-37

Tsar Bomba

Chagan

**UNITED KINGDOM**

*Current Stockpile: 215*

Hurricane

Totem

Mosaic

Buffalo

Antler

Grapple

Vixen

## **FRANCE**

*Current Stockpile: 300*

Gerboise Blue

Agathe

Aldébaran

Canopus

Achille

Xouthos

## **CHINA**

*Current Stockpile: 260*

Project 596

CHIC-2

CHIC-3

CHIC-4

CHIC-5

CHIC-6

CHIC-7

CHIC-8

CHIC-9

CHIC-10

CHIC-11

CHIC-12

CHIC-13

CHIC-14

CHIC-15

CHIC-16

CHIC-17

CHIC-18

CHIC-19

CHIC-20

CHIC-21

CHIC-22

CHIC-23

CHIC-24

CHIC-25

CHIC-26 (aborted)

CHIC-27

CHIC-28

CHIC-29  
CHIC-30  
CHIC-31  
CHIC-32  
CHIC-33  
CHIC-34  
CHIC-35  
CHIC-36  
CHIC-37  
CHIC-38  
CHIC-39  
CHIC-40  
CHIC-41  
CHIC-42  
CHIC-43  
CHIC-44-1  
CHIC-44-2  
CHIC-45

**INDIA**

*Current Stockpile: 120*

Smiling Buddha

Shakti-1-1

Shakti-1-2

Shakti-1-3

Shakti-2-1

Shakti-2-2

Shakti-2-3 (cancelled)

**PAKISTAN**

*Current Stockpile: 130*

Chagai 1-1

Chagai 1-2

Chagai 1-3

Chagai 1-4

Chagai 1-5

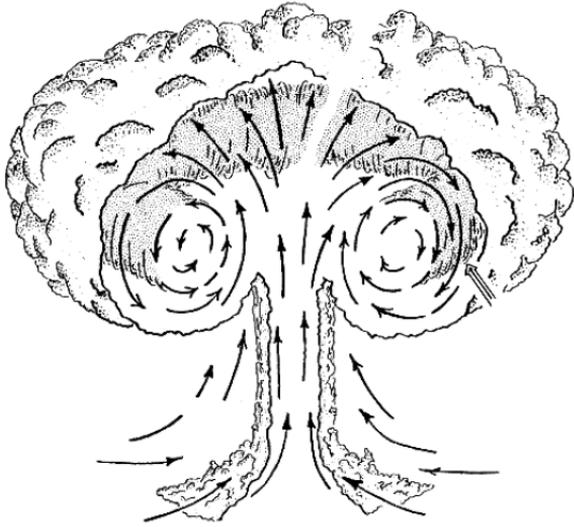
## **NORTH KOREA**

*Current Stockpile: 15*

- 1
- 2
- 3
- 4
- 5



# FALLOUT



## THE MANHATTAN PROJECT

*The Manhattan Project* is a book of lyric poetry which draws its theoretical basis from Joyelle McSweeney's book *The Necropastoral: Poetry, Media, Occults*. McSweeney describes the necropastoral as a liminal zone, containing "the manifestations of infectiousness, anxiety, and contagion...present in the hygienic borders of the classical pastoral...[a] location [that] stages strange meetings." (McSweeney, 7) The necropastoral explodes binary distinctions such as 'urban vs. pastoral' and 'natural vs. manmade', arguing instead that both human influence, from our pollutants to our reshaping of the environment, and nature's re-infiltration of previously human-occupied areas, constitute a kind of exchange, an osmosis of poisons, pests, roots, and chemicals across various membranes. The notion of the necropastoral urges us to ask how what we consider 'natural' has always already been contaminated by human activities, while also pointing out the pervasive and vengeful infiltration of 'natural' forces in 'urban' environments. *The Manhattan Project* grounds itself in the aesthetic of the necropastoral in order to resurrect the tonal and imagistic elements of the pastoral and the lyric for the post-nuclear age, conveying not only that these forms cannot be 'resurrected', but also that what emerges from their lead coffins is a far stranger beast.

The first poem of *The Manhattan Project*, "The Atoms we Cleave" (a phonic imitation of the phrase 'Adam and Eve'), describes a 'tree of

death', the antithesis of the biblical 'tree of life' and an emblem of pollution. Eve is replaced with "an incandescent nymph", and Adam with a graffiti artist. The line describing a "girl, crippled/from birth, [who] quotes the book of Revelation" refers to the child of the main character in Andrei Tarkovsky's *Stalker*, a film rife with necropastoral imagery involving spaces that both infest, and are infested by, nature.

The next section of poems, entitled "The Arms Race", spans the discovery and militarization of nuclear energy, beginning with fission reactions that first occurred in Oklo, Gabon, approximately 1.7 billion years ago. The poem "Below Oklo", argues that "nature was never innocent", revealing not only that human beings were not the cause of the first fission reactions on Earth, but also implying that the discovery of this energy source was inevitable, given our appetite for energy. The poem "Radioactivity" chronicles Marie Curie's discovery of radioactive elements, the pursuit of which led to her death. The poem ends by lamenting the seeming inability of language to convey emotive urgency, and thus to do more than occupy the 'chemistry' (ink and paper) that incarnate it. The poem "The World Set Free" dramatizes Leo Szilard and Otto Hahn's well-intentioned contributions to the atomic science.

The long poem "Ideal Isotopes" begins with a brief description of the radioactive isotopes Uranium-235 and Plutonium-239. "Ideal isotopes" is a

single canto of 239 lines of terza rima (using near rhyme rather than true rhyme), which obeys the metric constraints of iambic pentameter. The poem contains references to 239 religious deities associated with death, depicting the process of atomic fission as a kind of civil war taking place in the underworld.

The poem "Critical Mass" unfolds a scenario in which a worker preparing to leave 'fermi's pile', a graphite reactor used to initiate and study nuclear chain reactions, experiences visions of structures, analogous to the pile, drawn from human history.

The poem "Thuringa" plunders the BBC article entitled "Hitler 'tested Small Atomic Bomb'" by Ray Furlong, repurposing excerpts from the text as poetry. The account describes Nazi efforts to create a tactical nuclear weapon towards the end of WWII.

The following poem, "Trinity" (isolated in order to emphasize its significance), chronicles the first successful test of a nuclear weapon, using imagery inspired by photographs of nuclear tests.

The next section, entitled "Ghosts of Los Alamos", contains three short poems. The poem "Valles Caldera" introduces the setting, emphasizes the status of the caldera as the site of an ancient supervolcano, and describes the enrichment process. The poem "The Demon Core" pays tribute to poet Michael Lista's book "Bloom", an extensive account of an incident where several scientists were exposed to astronomically high levels of radiation. Finally,

the section of visual poems "Industrial Complex" responds to Christopher Dewdney's visual poems.

The next section, "Military Incidents", appropriates the United States military's nuclear incident terminology in order to chronicle nuclear mishaps. Where related incidents have not yet occurred, the section's poems instead respond to the metaphors themselves with fictional scenarios.

The section "Rain of Ruin" memorializes the victims of the Hiroshima and Nagasaki bombings. The first poem in this section, "Clear Skies", erases the transcript of the *Enola Gay*, the military aircraft that dropped the two atomic bombs. The second poem, "Testimony", amalgamates the testimony of Japanese survivors, as collected by journalist Jesus Diaz in his article "This is how it Feels to be Under a Nuclear Attack", presenting various survivor accounts as those of a single, unnamed individual.

The book's final poem, "Operation Epsilon", re-presents excerpts from the British government's transcription of the 'farm hall tapes', secret recordings made by British intelligence agents of several German physicists under house arrest at Farm Hall.

The following section of poems, entitled "Contamination", presents accounts of incidents of nuclear pollution. The poem "Christmas Island" re-presents Ted Blackwell's description of nuclear bomb tests that he witnessed. "Plutonium Valley" dramatizes the United States' tests performed during

operation plumbbob in the 1950s. "The East Ural Reserve" comments on the Kyshtym disaster, where a chemical explosion released large quantities of radioactive material. The next poem, "The Argonne Incident", speculates upon the cause of an explosion that killed three nuclear plant workers in the United States. The poem "The Human Factor" explores the fallibility of both human-made instruments and reasoning, which conspired to cause the Three Mile Island partial meltdown. The poem "The Elephant's Foot" responds to the Russian K-19 and Chernobyl disasters, presenting a narrative involving a tourist on a trip to Pripyat. "Caveat Clepta" comments on the theft of radioactive material from a derelict hospital in Brazil. The following poem, "Rising Water" depicts elderly volunteers who aided in clean-up efforts after the Fukushima triple-meltdown.

The next section, "Doomsday Machines", depicts three types of plausible nuclear weapons. The poem "Salted Bombs" depicts a post-apocalyptic scenario, caused by the use of nuclear weapons designed in order to maximize fallout. The next two poems, "Antimatter" and "Strangelet", are sonnets in which each line is the anagram of its poem's title.

The final poem, "Destroyers of Worlds", lists all nuclear weapons tests performed thus far, as well as all countries' respective reserves of nuclear weapons, drawing from Moez Surani's *Operation*, which lists the code names for all UN operations.

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Ken Hunt's written work has appeared in *No Press*, *Rampike*, and *Matrix Magazine*. His first book of poetry, *Space Administration*, was published in 2014 by the *LUMA Foundation* as part of Hans Ulrich Obrist and Kenneth Goldsmith's *89+ Project*. For three years, Ken served as managing editor of *NōD Mag.*, and for one year, he served as poetry editor of *filling Station*. In 2014, Ken founded *Spacecraft Press*, an web-based venue for experimental writing.