

**\*\*\*Sacred Peace Walk 2009 Background Packet\*\*\***

**Thanks so much for your interest in the 2009 Sacred Peace Walk!**

In this packet you will find background materials to help you prepare for the walk. It contains spiritual reflections about walking and the desert as well as information on nuclear issues and the unmanned aerial vehicles (UAVs) at Creech Air Force Base.

We will be walking through a highly militarized zone: Nellis Airforce Base hosts 1000 nuclear bombs; the Nellis Bombing Range and the Nevada Test Site have been site of Depleted Uranium testing and disposal; unmanned Predator and Reaper “aerial vehicles” or “drones” which are firing missiles and dropping bombs in Iraq, Afghanistan and Pakistan are controlled from Creech Airforce Base at Indian Springs; and the Test Site itself has seen 1,044 nuclear bombings. Yet we will also be walking through the desert, a place of great holiness in many religious traditions. Thank you for bringing your healing power and your longing for healing to the Nevada desert, a place truly located between heaven and hell.

In this packet you will find:

- Article “Walk in Peace for Peace” by Brian Kimmel (p. 2-3)
- Overview of NDE and Desert Spirituality from Ken Butigan’s book *Pilgrimage Through a Burning World* (p. 4-6)
- Article on Desert Spirituality: “Desert Attentiveness, Desert Indifference: Countercultural Spirituality in the Desert Fathers and Mothers” by Belden Lane (p. 7-16)
- Article on Depleted Uranium by Craig Etchison, Ph.D. (pp. 17-19)
- Health concerns at the Nevada Test Site (pp. 20-23)
- Briefing on the Nevada Test Site from Western States Legal Foundation (pp. 24-37)
- Factsheet on Complex Transformation from Friends Committee on National Legislation, FCNL (pp. 38-39)
- Factsheet on the Reliable Replacement Warhead Program from FCNL (pp. 40-41)
- Article by Fr. Louis Vitale about the Drone UAVs at Creech AFB (p. 42)

**Please check our website for the Peacewalk Logistics Packet and for recent news and updates to the schedule:**

<http://www.nevadadesertexperience.org/programs/peacewalk.htm>

On the website you will also find:

- Peacewalk map and schedule (subject to change)
- What to bring (please bring your own tent and sleeping bag!)
- Registration form and outreach materials about the walk, rituals and demonstrations
- Sample letter for recruiting sponsors for the walk (this helps raise money for our movement and is much appreciated!)
- “Walk-a-thon” style pledge sheet (very effective at raising \$15 at 25cents per mile for example)
- Links to other background information and fact sheets about nuclear issues, the drones, the desert and native land issues.

**If you have not yet formally registered, please download a registration form from the website**, or email us with your name, phone, address, arrival date, transportation and other needs. We ask for a registration fee of \$175-125, which covers food and other expenses, with a \$50 deposit to start with. We'll help you fundraise, but if cost is a deterrent, please contact us about other possibilities. We will provide snacks and healthy, simple meals. Please let us know if you have any dietary restrictions. If you would like us to mail you a hard copy of this welcome packet, we'd be happy to mail it to you! Also, we hope you'll consider downloading outreach materials to share with others.

**Please join us for the walk orientation scheduled for Monday, April 6 at 2 pm**, with lunch beforehand at noon. We will be gathering at the Las Vegas Catholic Worker house at 500 W. Van Buren Ave, Las Vegas. Please don't hesitate to contact us if you need help with transportation or if you need special sleeping accommodations.

At the end of the walk, everyone will be given a ride back into Las Vegas.

With love and excitement, The NDE Team

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## **WALK IN PEACE FOR PEACE** by Brian Kimmel

War had been my distant cousin, until one day I saw the war was in me. All wars are in me. When I was twenty-four I finally read my grandmother's autobiography about her life in Japanese occupied Indonesia during WWII. I read of the toil of a young girl, running for her life when the soldiers threatened to kill her uncle before her. Just as I turned the page, the blood of his slaughter ran through me.

War is never an impersonal thing. We think, even, we can suffer ourselves in silence, without anyone or anything to witness, but when we suffer we commit that suffering to the collective consciousness. As chief Seattle once said, "We are all connected."

Surely, when one of us experiences war, that war is infused like tea into a cup of hot water...surely our cup is filled with enough suffering to last for generations, enough wars to keep our hearts submersed over generations in the killing fields.

When we walk for peace, it isn't peace we walk 'for'. When we walk for peace, it must be our peace that is walking with us. Each step we can arrive into the Promised Land, the Kingdom of God. Each step we arrive home.

When we step with the left foot we can say 'Arrive'.  
When we step with the right foot we can say 'Home'.

Arrive, Home.

Our embodiment of peace is our message. Our body, as the body of peace, is our social action.

My teacher Thich Nhat Hanh says, "All the elements for your happiness are already here. There is no need to run, strive, search, or struggle. Just be. Just being in the moment in this place is the deepest meditation." (TNH 153 parallax press, 1998).

Surely we can take this wisdom into our actions toward world-peace. Even if we are voicing our concerns about nuclear weapons, if we are speaking out against fighting in Iraq, even if we are defending ourselves in court for a traffic ticket, or arguing with a friend about what we want to eat for dinner, act as if you have already arrived....see that which you desire most is already a part of you. See that this moment contains all.

If we are to walk for peace, walk in peace. Let our loving smile show the world that peace is possible, and that no wars, no amount of weapons can take away our freedom, our happiness, our love.

Freedom is available anywhere, at anytime. It is often the most difficult situations that offer the greatest opportunity for enlightenment. It is the freedom from suffering that I talk about. Because as long as we continue to hate, continue to build walls between each other, to have prejudices, blame, guilt, shame and even loneliness, even if our hands are no longer bound, and the bombs are no longer falling from overhead, freedom will not be found.

Freedom is something that must be developed internally as well.

I wrote an article once that was published in the New Times of Seattle called from "Abuse to Peace." A line from the article was captioned in bold print near the crease of the page: "...the war is and has always been

within. We cannot end this war without going inside and recognizing our own thoughts contributing to the suffering, fear, and anger in the world.”

I wrote it after 9/11/01. But the article was about how I loved my former stepfather after he sexually abused me. He was convicted after my testimony in an open courtroom when I was twelve years old. Love saved me. I remember many people asking me to get angry, to punch a punching bag, to express rage. Many in my family said, "I hate him for what he did to you." But I could not hate, I loved him. My love saved me, and saved him from suffering more.

Because when I am angry, and I blame another person for my anger, that person suffers a lot, I suffer a lot with that anger inside of me. Most of us get hurt from something on the outside and continue to blame that thing, to point our finger, to raise our voices, to close our hearts in anger for that thing.

Non-violent social action demands us to speak out against injustice without engaging in partisan conflict. It means that we see that both sides are suffering, both sides come from a common origin of ignorance, confusion, fear and violence. Four of the Fourteen Trainings of the Order of Interbeing are: Openness, Non-attachment to Views, Freedom of Thought, and Awareness of Suffering.

I wrote in my diary after the National Peace Rally this January, "Love is a deepening in the connection with the whole." If we love, we are available to listen deeply. If we are listening deeply we are not offering advice, not offering our opinion, but we are seeing into the heart of that person or thing. Meditation is deep-listening. Freedom is love.

#### **About the Author**

Brian Kimmel is an ordained lay member of the Order of Interbeing, a community of monks, nuns, laymen and laywomen under the guidance and tradition of Vietnamese Zen Master, Thich Nhat Hanh. He lives in Las Vegas and leads the Tuesday Night Mindfulness Group. He is also a gifted pianist, singer and songwriter and has written many beautiful songs for peace.

the Los Angeles Catholic Worker before relocating to Las Vegas to open a Catholic Worker house there.) Many Catholic Workers journeyed to the Nevada desert to join in NDE activities over the years, especially those marking Day's 90th and 100th birthdays (1987 and 1997) that were celebrated with workshops, liturgy, and nonviolent civil disobedience at the gates of the test site. The experiments in nonviolence that Dorothy Day had pioneered—including the rituals of civil defense resistance—were part of the lore and tradition that shaped the identity and praxis of succeeding generations of Catholic Workers. This transmission of a culture and spirituality of a particular construction of nonviolent action directly influenced those who organized faith-based resistance at the U.S. nuclear proving ground in Nevada.

#### *NDE and Desert Spirituality*

If we are to be pilgrims for justice and peace, we must expect the desert.

—Dom Helder Camara<sup>32</sup>

From the beginning, the desert played an unavoidably central role in the conceptualization and dramatization of NDE's contemporary pilgrimage to the test site. In the growing NDE vision, the desert was not regarded as "backdrop" or even primarily as "victim" of a relentless and merciless bombing campaign. It became a spiritually vibrant terrain that nurtured, taught, and transformed. The themes of the desert as place of spiritual temptation and personal testing, of apophatic *kenosis* or emptying but also inexplicable richness and satiation, of being a "devastatingly holy place," recur in people's accounts of their experience of NDE.

While it is true that the desert can evoke intimations of dread and fascination in many human beings simply because of its extremity—and a nuclearized desert can magnify this awareness of awesome power, horror, and in its broadest sense the sublime—it is nonetheless true that such extremity is ultimately not a "given" but an interpretation informed by one's store of metaphors or interpretive lenses. As Lakoff and Johnson have shown, our conceptual system and its range of metaphors define our reality.<sup>33</sup> This view of the Nevada terrain was not a "given." It was seen through certain lenses constructed through a long meditation on "desert" beginning in the Hebrew scriptures, highlighted in the Second Testament with Jesus' forays into the wilderness, embodied in the lived experience of the first Christian hermits in the Egyptian and Palestinian deserts of the fourth century C.E., enunciated recursively throughout the history of Eastern and Western Christian monasticism, and even reframed by European settlers in North Amer-

ica, whose settlements were regarded as Edenic outposts surrounding the formless chaos of the "desert" of its wilderness, even though distorted and discounted the view of this same terrain by the indigenous people already living there.<sup>34</sup>

As Boniface Ramsey suggests, the desert in Christian symbolism is inhospitable and represents the place of spiritual testing. The desert stands for the arena in which one, while submitting to the test, either one's spiritual salvation or one's spiritual doom. It is life in its starkest form. Those who go to the desert for religious reasons do so precisely with the intention of entering this arena and facing the challenge that presents itself there.<sup>35</sup>

These Christian interpretations of the desert are rooted in the Old and Second Testaments. The paradigmatic "desert experience" for the Hebrews was the exodus from Egypt and their forty-year trek to the desert that brings them finally to the Promised Land. The desert in this Jewish "founding narrative" of liberation plays a key role in the testing and testing the identity of the community. The desert also figures in the psalms and the Elijah cycle (1 Kings 17ff). Ramsey points out that Origen later conceives of "the journey across the desert of Sinai, with its various stops, a symbol of the individual Christian journey through the desert to the height of virtue, while in other ancient writings Elijah is presented as a model for monks."<sup>36</sup> In the Second Testament, John the Baptist is in the desert, and Jesus faces temptation and testing there before beginning his ministry (Matthew 4:1–11).

In *Thoughts in Solitude*, Thomas Merton views nuclear testing as a symptom of spiritual danger. "Look at the deserts today," he writes, "What are they? The birthplace of a new and terrible creation, the testing-ground of the power by which [the human being] seeks to understand what God has blessed."<sup>37</sup> This analysis flows from Christian monasticism's spirituality and theology of the desert. As Merton shows elsewhere, Western monasticism traditionally views the desert as the great school, where the human being passes from the unreal to reality and unreality to a life involving "a total commitment to reality," but it is there that one must rely entirely on God alone.<sup>38</sup> The desert topography that, by Christian monastic definition, does not support life; therefore, whatever life endures there is necessarily sustained by God. It is in this physical, spiritual, and existential terrain that humans come face to face with the Creator, because such a life is with God only. Merton writes that, for the Desert Fathers and Mothers, the great spiritual significance of the desert derived from its inversion of the hierarchy of the values of the dominant culture. They believe "the wilderness had been created as supremely valuable in the e-

God precisely because it had no value to [human beings]. There was nothing to attract. There was nothing to exploit.<sup>39</sup> For the Christian monks of the fourth century, the desert functions as the symbolic province of nothingness not because it is utterly devoid of sensible realities, but because it exists outside the framework of established social arrangements, including the economic valuation prescribed by prevailing society. The social construction of this view of “nothingness” has perdured throughout the history of Christian spirituality as a dynamic and potent element of the disciple’s spiritual journey. Just as Jesus’ mission is framed in terms of *kenosis* and emptying—dramatized most starkly and vividly in the crucifixion—Christian practitioners, including many considered saints, mystics, and contemplatives have experienced Christianity as the *via negativa*, the absence of God, or the apprehension of nothingness.

At the same time, because it is not a locus or bearer of those social values, the desert threatens the person who clings to them. For this reason, in the Christian monastic vision this place of God is also the place of demons that signify the insanity and death, which a site located outside the penumbra of social structures threatens to inflict. The desert is a terrain of madness and devils. The first hermits who withdrew to the deserts of Egypt and Palestine searched for God but knew that the way to this “great unknown” was by way of an ongoing battle with The Adversary.<sup>40</sup> In this symbology of Christian spirituality, the desert is thus a rich symbolic site where one is freed of all that blocks intimacy with the mysterious and hidden—but sustaining and nurturing—Source. At the same time, it is a setting where one contests the forces within and without that seek to interfere with this intimacy and relationship with that Source. It is not by accident that commentators refer to the desert as an *arena* where this contest is fought: just as the “sandy arena” in Rome was a place of grisly, imperial spectacle, where early Christians were tested, so too the early monks self-consciously were engaged in another struggle in another, sandy setting. The desert has become the new stage or theater of a dramatic, if more hidden and subtle, *agon* where Christianity is performed in a new way.

The desert—and the quest it contextualized—was a forbidding environment. As scholar Douglas Burton-Christie puts it, desert monasticism was a “hand-to-mouth” spirituality. It began as a lay movement; it had no literature at the beginning except the Bible; and it could be fairly free-form and somewhat disconnected from the larger Christian community. Primitive Christian desert spirituality was marked, Burton-Christie shows, by several key elements: eschatology (an awareness of the coming judgment); the struggle with the forces of evil; freedom

from care; recovery of paradise; *penthos* or compunction; purified heart, and the cultivation of obedience, simplicity, poverty, non-attachment, and love. Key to all of these dimensions of desert spirituality is *humility*, interpreted in this context as the process of decentering self and recentering it in the life of God. Pride and ego-attachment block spiritual advancement.<sup>41</sup>

Echoing this, theologian Belden C. Lane summarizes the fundamental elements of the Christian desert tradition as God-as-desert (God beyond all words and knowing), self-as-desert (emptied so as to be God and God’s love at its center), and the role of ascetical and liturgical practices in revealing this hidden source of love and transformation.

The metaphor and experience of “the desert,” as formulated in the Christian tradition, suggestively illuminate NDE’s ongoing experience at the gates of the Nevada Test Site. The exodus from nuclearism entering a place dedicated for decades to its propagation. Spiritual practices countering nuclear testing, a testing that challenges one’s own internalized nuclearism. Engaging with the place perceived as wasteland and discovering its plenitude. Struggling with apocalyptic evil but doing so with humility and, in the doing of it, beginning to glimpse the spiritual values the desert teaches: compunction and nonjudgement and freedom from care. Entering the desert of God and of self, and doing so through ascetical and liturgical performances contextualized to respond to the dilemmas of a nuclearized world.

These and other themes have been repeatedly sounded by pilgrims. In March 1988 Patricia McCarthy wrote about her NDE participation in this way:

On the surface a call to the desert could be a comforting embrace of solitude among the raw beauty of untrod sand and pebble. In every creature, color and texture carefully blend, designed for survival. But this is a new day, we go to a new desert, a desert being destroyed by radiation and shock, a desert being bound from producing and sold for greed.

Jesus went into the desert, he was the first to cross the line, to dare to look evil in its faceless reality and say, “Away with you Satan . . . God alone shall you adore.” He went ahead of us to show us how to worship, how to be the people of God we were created to be. He knew we could never be human with each other as long as we had gods of metal and iron. And he knew that we could not disarm our hearts from them without the truth of God. “Idols tremble at the access of the truth of God.”

The desert is the place in us where we affirm the truth of God and admit that it doesn’t fit with the reality of destruction and violence

Going into this place doesn't require heroism, it demands surrender to the awesome person of God and abandonment to his heart. From there his will and desire consume us, transforming hearts of stone to hearts of flesh.

Jesus returned from the desert to minister to his people, confident that he was of God and with God; and because of him, we do the same.<sup>43</sup>

In the same year, the Nevada Desert Experience published a booklet entitled *Notes on Nonviolence*.<sup>44</sup> This short work, deploying a comparatively sparse and lyrical prose, summarizes NDE's vision of the desert:

An hour drive from Las Vegas,  
Cold mornings then hot sun.  
Flowers. Cactus. Snakes, mice, songbirds. Silence.  
Wind. Mountains. Expanse. Silence.  
Another Test Site vigil.  
People from near and far gather in the early hours of the morning . . .  
In every direction is desert, the Great Basin.  
Vigilers retreat into the desert for the inner work of nonviolence.  
Those who know the desert and those who do not  
Are quieted to their core.  
In the desert there is a natural order,  
An instinctive putting of first things first.  
With ease, simplicity and grace.  
This is sacred ground. The Paiutes named it, "Ground Afire."  
In the desert, inner peacemaking is easier because luxury, position and status account for nothing. Solitude strips away the need to maintain false appearance.  
Here we can face ourselves without illusion or pretense. A desert experience is seeing ourselves for who we are within the solitude of God.  
Silence. Hours of silence.  
We have not come to the desert to hide from ourselves or the world.  
We intend to look long and hard, and act. Our experience of soul searching is by design and location an experience in soul force.  
The desert prayer deepens. The vigil becomes embodied prayer.<sup>45</sup>

Vast political, cultural, sociological, economic, and environmental factors were incalculably important in catalyzing the historical matrix from which the Nevada Desert Experience and other antinuclear organizations emerged. At the same time, NDE's vision, character, and practice were shaped as well by particular persons who, rooted in specific religious and political traditions, gradually synthesized a vision and a set of practices as a response to the challenges of that historical and existential moment. The people who created the Nevada Desert Experience discov-

ered that they were engendering a different kind of pilgrimage to which they would invite thousands of people, even as they arrived, like untiring pilgrims, at the edge of a terrain of poignant beauty in the bourgeois physicality of the American West and in the unbounded fear and possibility in the postwar imagination. Drawing on traditions of active nonviolence, Franciscan spirituality, the Catholic Worker Movement, and the perduring lineage of desert religiosity, the founders of, and participants in, Nevada Desert Experience created a contemporary spiritual discipline that sought, consciously or unconsciously, to decenter and recenter itself consenting to and reinforcing nuclearism and its spiritual, psychological, political, military, cultural, and economic burden.

Over the following two decades, this spiritual discipline worked itself out in many different ways. In the following chapters I examine in more detail what I call three spiritual practices of the Nevada Desert Experience's *antinuclear asceticism: nonviolent civil disobedience; the Stations of the Nuclear Cross; and antinuclear pilgrimage*

## **DESERT ATTENTIVENESS, DESERT INDIFFERENCE: COUNTERCULTURAL SPIRITUALITY IN THE DESERT FATHERS AND MOTHERS**

by Belden C. Lane

Cross Currents, 0011-1953, , Vol. 44, Issue 2

On the far side of emptiness, where brokenness and disorientation overtake us, where death awaits us, we learn to care--and not to care.

In December of 1935, Antoine de Saint Exupery, on a mail flight between Paris and Saigon, crashed in the Libyan Desert west of the Nile. It was in the same vicinity to which the desert fathers and mothers of the fourth century had withdrawn to seek the face of God in a landscape of emptiness. Saint Exupery's story of survival, in his now classic *Wind, Sand and Stars*, evokes the same desert discipline practiced by those who had preceded him there centuries earlier. No one lives for long in the desert without acquiring its crusty virtues of attentiveness and indifference. It was only because of these that Saint Exupery survived.

Over a period of three days he walked 124 miles without water through desert sands, stumbling at last, half-dead, into a remote Bedouin camp. He had been told that no one could survive more than nineteen hours in the desert without water; the eyes then filled with a ghostly light, and death soon followed. What saved him were two things. First, he was meticulously observant of his surroundings, noticing an unusual northeast wind, full of moisture, retarding the dehydration of his body and bringing a light dew he could collect on parachute silk. Secondly, he remained stubbornly indifferent to the panic, pain, and despair which preyed on his mind. Learning to be fiercely attentive, he learned also not to care -- to ignore everything that was unnecessary, everything unrelated to the primary task of staying alive.

When he finally crawled into the Bedouin camp, he looked like some desert rat, crazed and blistered. Unable to raise any saliva, his lips had sealed together with a kind of glue. His tongue was like plaster-of-Paris. There was a rasping in his throat, a horrible taste in his mouth. In the last hours, he had been waiting for the tell-tale cough to begin, the throat to close up, the shining spots to appear before his eyes, spots that would soon change to flames, and then the end. This, he had learned in talking to others, was the pattern of desert death he could expect as his own.( n1)

Having once known the desert in a way as intimate as this, Saint Exupery could never again succumb to the naivete of desert romanticism. Those of us whom the desert has never touched find it much easier to imagine only the beauty and glory of desert spirituality -- thumbing our way through old copies of *Arizona Highways* and dreaming of desert retreats. We suppose arid and empty terrain to be naturally solicitous of our human need for contemplation. But the stark, unsettling truth is that the desert doesn't give a damn. Its capacity for indifference seems almost infinite. Precisely this sense of danger and disregard fed the spiritual vigor of early desert monasticism.

There is an unsolicitous and ungentle quality about the desert Christians that makes them especially attractive in our current climate of sentimentalized, feel-good spirituality. Much of popular contemporary piety is so individualistic and ego-centered, so prone to the cultivation of niceness, so disconnected from questions of justice, that it risks anything to avoid giving offense or making demands. The spiritual life of mainstream American churches and synagogues is eminently unexceptionable, generically inoffensive, culturally correct. We substitute amiability for friendship, agreeableness for dialogue, pleasantries for compassion. The acrid smell of the desert is lost.

By contrast, one almost has to speak of the surly, discourteous piety of the desert fathers and mothers. They were resident aliens in a world that fostered gentility and comfort. They simply did not fit. As Bruce Berger

observes, "the desert notoriously harbors the loner, the misfit, the only child." (n2) It attracts a people who are downwardly mobile, often cantankerous, ill at ease in polite society. Shun the city and all of its niceties, growled Jerome from his desert lair. His Christianity required the harsh solace of open spaces.

The desert has always been the abode of dingbats, visionaries, and half-crazed fools. It invites departure from every form of civility. "Never forget," warns one contemporary desert writer, "that it was in the Mojave that the first claimed UFO sightings took place, and the pioneer conversations with little green men from Venus. In a landscape where nothing officially exists (otherwise it would not be 'desert'), absolutely anything becomes thinkable, and may consequently happen." (n3) The desert, as a place where one expects nothing, becomes the source of the hauntingly unexpected: this unpredictability formed the robust spirituality of the desert monks. (n4)

Not surprisingly, their God was no different. Theirs was not, in John Crowe Ransom's phrase, a "God without thunder," having been thoroughly housebroken and made presentable to the cultural elite of their day. Their God remained mystery -- feared certainly and much loved, but never understood. They would have agreed entirely with John Muir's assessment that in God's wildness lies the hope of the world. (n5) They were quick to recognize "the wildness of God" as a theological category too often ignored by the rest of the church.

### **Agrupnia and Apatheia**

The threat of desert landscape -- from its grudging stinginess with water to its poisonous lizards and waiting vultures -- has a way of eliciting the sharp, lean qualities of attentiveness and indifference. Both are desert virtues, honed by exposure to the elements. The one is necessary for survival. No one lasts in the desert without constant attentiveness to exterior and interior landscapes alike. One must keep an eye out for landmarks, the position of the sun in the sky, tracks in the sand, threatening clouds. But equally important is staying attuned to one's inner condition -- the progress of fatigue, the irritation of blisters, the forgetfulness to which the mind is prone, the slow rise of panic at the fear of being lost. The desert fathers and mothers spoke of this attentiveness as agrupnia, the spiritual discipline of "wakefulness," the crucial importance of being aware, paying attention.

The other virtue of "indifference" is the more slowly-learned attitude of abandonment that grows from prolonged desert experience. (n6) It means learning to ignore the unimportant, being able -- as one prepares for desert travel -- to know what to leave behind. It, too, is directed toward interior as well as exterior landscapes. One must learn to accept the empty silence, to ignore sun and heat, to be untroubled by the sparsity of food -- by the sparsity of everything other than space. Yet, even more importantly, this indifference must be aimed inwardly at the self. It means not taking the ego too seriously, being able to watch one's compulsive needs wilt under the discipline of inattention. The desert invites an ignoring of the ego, its separation from the inner audience to which it continually plays for sympathy and admiration. The desert fathers and mothers spoke of this indifference as apatheia, the spiritual discipline of "detachment" or "dispassion," the practice of apathy with respect to matters of unimportance. "Indifference" is offered here as an intentionally provocative translation of the term, understood after the pattern of Ignatius Loyola's "active indifference." It doesn't suggest diffidence, laziness, or disinterest so much as the rigorous ordering of one's desires, a reducing of everything to the demanding measure of God's will. (n7)

Attentiveness and indifference are, respectively, the constructive and deconstructive poles of the spiritual life. They tell us when to pay attention and when to let go, what to concentrate on and what to ignore, how to survive and how to abandon everything that isn't necessary. T. S. Eliot, in "Ash Wednesday," prayed for both: "Teach us to care and not to care." (n8) John Climacus, the crusty old abbot of the monastery at Mt. Sinai in the seventh century, understood these virtues as two of the most important rungs in his Ladder of Divine Ascent, a guide to the spiritual life without parallel in all of Eastern Christianity. (n9)

They stand in paradoxical relation to each other, these two disciplines of the spirit: how to pay attention and how not to pay attention (and when to apply which of the two standards). Nothing else is more important or more difficult in one's faltering practice of a life of prayer.

## **Learning to Pay Attention**

*The talmudic sage Rabbah bar bar Hana, traveling in the wilderness of Sinai in the third century, spoke of meeting an old Arab merchant who "by taking up sand and smelling it," could tell how far he was from the nearest water. The rabbi tested him with sand that was eight parasangs away from the nearest oasis, then again with sand that was three parasangs away. In each case, even when the rabbi tried to fool him with sand substituted from another place, the old Arab proved infallible in his sense of smell.( n10)*

*People who dwell in wilderness, living close to the land, often evince powers of attentiveness that seem magical by comparison to others.' But the difference really is only one of discipline. Most of us have little experience in paying careful attention to anything. We marvel at a naturalist like Louis Agassiz of Harvard who once said he had spent the summer traveling, only to get half-way across his back yard. We can't imagine spending that much time on that narrow a field of attention.*

*That's why the life of the monk seems so utterly foreign, even frightening, to us. Our conditioning as members of a consumer society prevents us from abandoning hope that, with sufficient planning, we might yet be able to see and do everything. To move slowly and deliberately through the world, attending to one thing at a time, strikes us as radically subversive, even un-American. We cringe from the idea of relinquishing, in any moment, all but one of the infinite possibilities our culture offers us. Plagued by a highly diffused attention, we give ourselves to everything lightly. That is our poverty. In saying yes to everything, we attend to nothing. One can love only what one stops to observe.*

*The desert, as a lean and arid landscape of few distractions, is a place that can teach us well this truth. With its uncluttered horizon, its tendency toward simplicity and repetition, it offers little to the eye and provides great clarity in what it offers.( n11) Stars, for example, are far more brilliant in its dry, night air, stripped of humidity, than anywhere else. The desert serves as an optimal place for sharpening one's skills at paying attention. Survival demands it. The five senses are heightened by wilderness experience and apophatic prayer alike. Disciplined familiarity with emptiness is an exercise the desert teaches equally well to body and soul.( n12)*

*But there are never, of course, any guarantees. The desert occasions no simplistic environmental determinism, as if entering a dry and barren terrain automatically assures one of spiritual insight. People go to Las Vegas and Reno every day, finding in the desert absolutely nothing. The place may invite them to a deeper reflection on the nature of the nothing they have found, but few pause long enough to listen on their way out of town.*

*The desert fathers and mothers, by contrast, took all the time necessary to attend to the desert's subtle, taciturn wisdom. Abba Abraham praised the barren landscape of the wilderness at Scete because of its having nothing whatever to offer. Its very lack of fruitfulness meant that men and women would not be distracted by thoughts of cultivation, production, yield per acre.( n13) Its yield had to be measured in the increase of emptiness and abandonment, the slow growth of attentiveness. The discipline of the desert was gradually acquired in the methodical weaving of palm fronds into mats and baskets, the practice of long exposure to desert loneliness, the reduction of life to a radical simplicity. Growth in the spiritual life came to be measured in micro-parameters, in how much could be given up, how much one could be emptied.*

*Tom Brown, author of *The Tracker* and *The Search*, sees this process of emptying as part of one's learning to pay attention in wilderness settings. He teaches wilderness survival and nature observation skills in the Pine Barrens of New Jersey. On entering the desert, he knows one must learn to be quiet enough to distinguish*

*disturbances in the surrounding landscape from those within the soul;( n14) to distinguish between exterior and interior deserts. Otherwise, we recklessly charge into the wilderness, imagining ourselves being followed on unfamiliar trails, jumping at startling sounds, projecting an inner turmoil onto the outer world. One's internal baggage makes true attentiveness impossible.*

*Saint Exupery speaks of waiting one night for a late flight to depart from a remote landing field in the Sahara. Feeling vaguely uneasy as he walked out in the desert air, he heard dragonflies striking their wings against an oil lamp nearby. It was a sound that vaguely disturbed him, though he didn't know why. The unsettling feeling required a sorting of inner and outer landscapes, checking the one against the other.*

*Back home in France, the flight of moths around a candle flame at night would have been perfectly common, provoking no particular interest. But there in the desert the sudden presence of insects meant something entirely different. Swept hundreds of miles from their inland oases, the dragonflies were clear signs of impending danger. A savage sand-storm was on its way, sweeping every living thing before it.*

*Saint Exupery was grateful for the warning that had come, but was moved even more by the powerful experience of having been attentive in an unfamiliar environment -- having been able to distinguish the mystery of the land from the mystery of himself. "What filled me with a barbaric joy was that I had understood a murmured monosyllable of this secret language, had sniffed the air and known what was coming, like one of those primitive men to whom the future is revealed in such faint rustlings; it was that I had been able to read the anger of the desert in the beating wings of a dragonfly."( n15)*

*Desert attentiveness of this sort is not easily acquired, as people from Antony of Egypt to Mary Austin and Edward Abbey have learned. The desert Christians sought it carefully in the pattern of prayer they adopted for themselves, paying meticulous, repetitive attention to the subtle presence of God in a sparse and meagre landscape. They shared the hard-won wisdom of desert naturalists like Joseph Wood Krutch who never tired of attending to the ordinary. "In nature," he said, "one never really sees a thing for the first time until one has seen it for the fiftieth."( n16)*

*The practice of paying attention is the rarest of gifts because it depends upon the harshest of disciplines. So uncommon is it for us to grasp the beauty and mystery of ordinary things, that -- when we do so -- it often brings us to the verge of tears.( n17) Appalled by our own poverty, we awake in wonder to a splendor of which we'd never dreamed.*

## **Ignoring What Doesn't Matter**

But the compelling mystery of the desert is even more pronounced in what it is able to ignore. One easily becomes lost, physically as well as figuratively, in its vast indifference, in the great emptiness to which it bears witness. The desert is a place fraught with the danger of disappearance. Its ability to absorb people into the terrifying nothingness of its boundless space is legendary.

The "Lady Be Good," a bomber attached to the Allied Forces in North Africa during the Second World War, took off on its first combat mission in 1943. Within hours, all radio contact was lost and the plane disappeared, apparently swallowed up by the desert's vast expanse. Seventeen years later the plane was found in the sands of the Libyan desert, perfectly preserved, offering no clue to what might have gone wrong.( n18)

The desert is like that. It cares little. Stories are repeated in desert towns of the American Southwest about people who have vanished into thin air, their tracks fading away in some remote canyon. The desert, apparently, consumed them. Such was the case of Everett Ruess, a desert enthusiast whose love of Zion National Park took him often into the wilds of the Escalante River system in southern Utah. On one of those trips, in 1934, he disappeared. His boots were later found, but nothing else. There were no signs of animal attack or foul play.

Only an inscription on the doorway of an Anasazi ruin nearby, in his handwriting, of the words "Nemo 1934." Nemo, in Latin, means "no one."( n19)

What (or who) was it that Everett Ruess encountered in the awesome nothingness of the Escalante wilderness? What terrifying -- and yet joyous -- freedom is discovered in the desert's enormous capacity for indifference? These are questions posed by the desert's grand disinterest in all the affairs that preoccupy our attention. The desert scoffs at much that we hold dear.

This harsh virtue of desert indifference seems to conflict with its opposite impulse of careful attentiveness, the one taking away what the other gives. Actually the two principles operate very much in tandem. Indifference serves as a corrective lens, indicating what does and doesn't deserve attention. It provides the negation that gives meaning and direction to the broad field of one's concentration. If focusing one's attention is half of the desert art of contemplation, the other half is a matter of knowing when and how to withhold it.

For the early fathers and mothers, the immensity of the desert's indifference -- suggesting for them the even greater immensity of God -- offered great clarity about what did and did not matter, about what they would attend to and what they would ignore. In the calm, critical judgment of divine insouciance, bold decisions could be made about how the community of faith would conduct itself in the world.

To use the provocative language of Stanley Hauerwas and William Willimon, the desert Christians understood the church as an alien community no longer caught up in the anxious, self-interested preservation of the world-as-it-is. Their practice of indifference to the dominant social values of their age, exercised from the desert's edge, stood in stark contrast to the accommodating spirit of post-Constantinian, urban Christianity. Indeed, they understood their "oddness" to be an essential part of their faithfulness to Christ and the new community being formed in their midst.( n20)

The indifference practiced by this desert colony of believers took shape in response to the social and political preoccupations of a compulsive world. In their reading of the gospel, they knew that a person's worth could never be measured by reference to any contemporary cult of success. The story is told, in the sayings of the desert fathers, about a brother who came to Macarius the Egyptian, asking the great abbot of the monastery at Scete how he could achieve a reputation in holiness. The older monk told him to go to the cemetery and abuse the dead, yelling at the most prestigious among them for all he was worth, even throwing stones. The young man thought this strange, but did as he was told and then returned to his teacher.

"What did they say to you?" Macarius asked. "Nothing," the brother replied. "Then go back again tomorrow and praise them," answered the abbot, "calling them apostles, saints, and righteous men. Think of every compliment you can." The young man once more did as he was told, then returned to the cloister, where Macarius asked, "What did they say this time? .... They still didn't answer a word," replied the brother. "Ah, they must, indeed, be holy people," said Abba Macarius. "You insulted them and they did not reply. You praised them and they did not speak. Go and do likewise, my friend, taking no account of either the scorn of others or their praises."( n21)

Becoming equally indifferent to the praise and blame of the world was a primary goal of spiritual discipline in the desert. Learning not to care was a matter of utmost importance. Yet the desert masters were always careful to distinguish between "true" and "false" indifference. "True" indifference was a fruit of contemplation, a direct result of disciplined attentiveness. The "no" of desert apatheia could emerge only out of deep certainty about the "yes" of the gospel. Detachment from the world and its values required informed, deliberate choices about what does and doesn't matter in light of Jesus and the inbreaking of his kingdom. True indifference was rooted in a very conscious caring.

"False" indifference, by contrast, was seen as an easy, casual matter of choosing haphazardly by neglect. It dissolved very readily into the worst of the seven deadly sins -- sloth or accidie, the lazy sullenness and

despairing indiscipline of not caring about anything. Maurice Sendak whimsically satirizes this vice in his tiny "cautionary tale" for children entitled *Pierre*. The constant refrain of his young protagonist is "I don't care." All threats are empty, all promises void for children who, like Pierre, live beyond hope. In the desert experience of the early Christians, such was the temptation of despair that often struck at noon- with the sun high overhead, the heat oppressive, mind and body giving in to the weary, monotonous passing of time.

False indifference is the scourge of a domesticated Christianity, tired and worn-out, readily accommodating itself to its culture, bowing to the social pressures of the status quo. It remains so tame as to fear nothing so much as the disdain of sophisticated unbelief. Such indifference is what allows the church to abandon its call to radical obedience to Christ in the world. It becomes the driving force behind every injustice, allowing dominant cultural forms to remain unchallenged... by people too indifferent to care.

But indifference properly understood can become a source of profoundly liberating power. Adopted as a discipline of ignoring what isn't important -- in light of the truth of the gospel -- it becomes a counter-cultural influence of great significance. People who pay attention to what matters most in their lives, and who learn to ignore everything else, assume a freedom that is highly creative as well as potentially dangerous in contemporary society. Having abandoned everything of insignificance, these are people not easily coopted. They have nothing to lose. Apart from being faithful to their Lord, what happens to them no longer matters.(n22)

Were Christians to practice this stubborn desert discipline today, they would find a freedom that is refreshing and contagious to some, but also threatening and intolerable to others. Unjust societal structures and people addicted to power will not tolerate being ignored. They are profoundly threatened by those not subject to their influence, no longer playing by the accepted rules. To cease to be driven by the fear of what other people think is to become a threat to the world as we know it. Only at great personal risk does one become indifferent to the accepted standards and expectations of the dominant culture.

Yet the people willing to assume this risk- the ones who find the center of their existence outside the cultural milieu -- are those who model for us today the vitality of Christian faith. A marginal character in William Golding's novel *The Paper Men* seems strangely unaffected by everyone else's compulsive craving for attention and success. "The things you could see that woman had no need of," an acquaintance cries out in astonishment and envy.(n23) Such a declaration may be the highest praise possible in a commodity culture like our own. But it was common reality among desert Christians. People in the fourth century were dumbfounded by all the things of which the monks seemed to have no need.

### **The Moral Equivalent of Desert**

Where, then, does one go to learn such freedom? Can the gruff virtues of the desert be cultivated in contemporary urban life? Is physical proximity to an arid landscape necessary for the practice of desert spirituality? The answer is both yes and no. Clearly the desert, as desert, teaches attentiveness and indifference with great finesse. For some of us there is no substitute for wilderness. Nothing is able to take the place of periodic forays into the land of little rain. The desert feeds something that is fragile, but insistent in the modern soul.

Even for those who never enter the land of cholla and creosote bush, the mere existence of wilderness is important. "We simply need that wild country available to us," Wallace Stegner argued, "even if we never do more than drive to its edge and look in." The desert answers to deep purposes of the human spirit. Something in us requires its presence.(n24)

But the practice of Christian discipline has never been limited to specific physical environments. The truth of the desert fathers and mothers has to be transferable, able also to be lived out in the canyons of our great cities -

- where steel and glass cliffs of mirrored indifference border the street corners of lonely anonymity at Madison and State, Fifth Avenue and Fifty-Seventh Street.

Where, in the modern landscape of our lives, do we find the moral equivalent of desert? What are the places in our experience where desert abandonment is forced on us with the same threatening insistence provided by fierce geographical terrain? In what hazardous contexts does an alien community of faith struggle even now to survive?

All of us know desert Christians who have never been to Egypt, never wandered the dry arroyos of northern New Mexico. But they have been no strangers to the most terrifying of desert landscapes. They have known intimately the parched and cracked land of an AIDS hospice, the steep cliffs beyond the waiting room of Radiation Oncology. Through their struggle with cancer and AIDS, they have acquired much of the attentiveness, explored many of the deep caves of indifference mapped out by desert Christians centuries before them.

We know others who have trod the high country of abuse, who have --through poverty or prejudice -- dealt with levels of indifference for which we have no language. Still others have dwelt in the harsh desert of addiction and mental illness, knowing the sustained pain of divorce, unemployment, or physical disability. The possibilities of desert experience in contemporary life are more varied than we ever might have thought.

Certainly a distinction has to be drawn here between voluntary and involuntary desert experience, between those who intentionally embrace the vulnerability of self-emptying and those inadvertently thrust into the dark night of body and soul. A crucial question of our time is how to provoke people into practicing the former while identifying in solidarity with those suffering the latter. In early monastic practice, the desert served a double function of comforting the afflicted as well as afflicting the comfortable.( n25)

The desert, as metaphor, is that uncharted terrain beyond the edges of the seemingly secure and structured world in which we take such confidence -- a world of affluence and order that we cannot imagine ending. Yet it does. And at the point where the world begins to crack, where brokenness and disorientation suddenly overtake us, there we step into the wide, silent plains of a desert we had never known to exist.

We cross its sands -- unwelcomed, stripped of influence and reputation, the desert caring nothing for the worries and warped sense of self-importance dragged along behind us. There in the desert everything is lost. Absolutely everything. The extent of its unrelenting indifference is devastating. This awareness, at first, is terrifying. But if we stay long enough, resisting the blind panic that gnaws at our minds, we discover -- beyond hope and all caring- that "in the end we are saved by the things that ignore us."( n26) The desert's silent immensity is able to absorb every grief and anxiety, all the fears and brokenness we are able to pour into it. In being emptied of everything, oddly enough we know ourselves to be loved unconditionally -- for the first time in our lives. The deepest mystery of love is never realized apart from the experience of having nothing to offer in return. Only there does love reveal itself in unaccountable wonder.( n27)

In that place, we discover ourselves to be no longer alone. In the wilderness we meet other wizened souls who have weathered sun and heat, all of them healed of the same wound. There is a wildness in their eyes. They don't give a damn for things they used to find so terribly important. Hardly fit for polite company, they nonetheless love with a fierceness echoing the land through which they have passed. Like Abba Simeon and Amma Syncretica, theirs is "a harsh and dreadful love," pure as it is lean.( n28) The desert has taught them well. They are what the church has been summoned to be -- a community of broken people, painfully honest, undomesticated, rid of the pretense and suffocating niceness to which "religion" is so often prone. They love, inexplicably and unflinchingly, because of having been so loved themselves.

The desert, unquestionably, is a hard schoolmaster. Its discipline is fierce and unrelenting. Mark Twain proclaimed in *Roughing It*, his own ornery account of desert survival, that "Prov'dence don't fire no blank ca'tridges, boys." (n29) All the games in the desert are played for keeps. D. H. Lawrence described the arid terrain of New Mexico as a place of "splendid silent terror." (n30) Hundreds of nineteenth-century travelers succumbed to the heat and rattlesnakes along a thirsty stretch of land known as el Camino del Diablo on the southern Arizona border.

*The desert kills. But it also gives life...robust and insistent life. Nothing is more beautiful than the red splash of desert sky after a late-afternoon storm, no flower more lovely than the cactus bloom that opens but once a year. If, in biblical imagery, the desert is a place of fiery serpents and scorpions on an occasion for brokenness and failure (Deut. 8:15), it is no less a place of beauty and romance. Yahweh remembers walking hand in hand with Israel, as lovers in the lonely desert of Sinai (Jer. 2:2). The landscape of terror becomes also a land of allure and love. (n31) Even in its darkest mysteries, the desert reveals its beauty. The sacred datura, or moonflower, blooms only at night, its white, trumpet-shaped flowers as rich in ghostly dreams as they are in fragrance. "All things excellent," says Edward Abbey, "are as difficult as they are rare." (n32)*

*Through all its stern lessons in attentiveness and indifference, the desert points to a beauty and wholeness found only on the far side of emptiness. In desert wildness we meet an untamed God who upsets every expectation, destroys all order as we have known it. Our plane crashes in the desert and burns. Everything... is lost. Death, most likely, is nineteen hours away. Never have we been so alone or so empty. But in the clarity of that moment, in the reckless wilderness beyond all hope, we are somehow met. Inexplicably and without reason. We discover something worth paying attention to, something more beautiful than ever we had imagined in all of our lives. We realize how very little everything else matters, by comparison. In our absolute nothingness, we are loved unreservedly by a God on whom we have no claim.*

*"Teach us to care and not to care," the Ash Wednesday prayer intones. Nothing else seems quite so important for those who have been to the desert and back. Attentiveness and indifference form the foundation of the desert discipline by which their lives continue to make sense in a world increasingly desperate for meaning.*

## Notes

(n1.) Antoine de Saint Exupery, *Wind, Sand and Stars* (New York: Harcourt Brace Jovanovich, 1968), 173-236.

(n2.) Bruce Berger, *The Telling Distance: Conversations with the American Desert* (Portland, Ore.: Breitenbush Books, 1990), 1.

(n3.) Peter Reyner Banham, *Scenes in America Deserta* (Salt Lake City: Gibbs M. Smith, 1982), 44.

(n4.) The cultural and geographical matrix of fourth-century desert monasticism is described in Derwas Chitty, *The Desert a City: An Introduction to the Study of Egyptian and Palestinian Monasticism under the Christian Empire* (Oxford: Basil Blackwell, 1966); Peter Brown, *Society and the Holy in Late Antiquity* (Berkeley: University of California Press, 1982); and Belden C. Lane, "Desert Catechesis: The Landscape and Theology of Early Christian Monasticism," *Anglican Theological Review* (Summer 1993): 292-314.

(n5.) Richard Cartwright Austin, *Baptized into Wilderness: A Christian Perspective on John Muir* (Atlanta: John Knox Press, 1989), 90.

(n6.) Apatheia is defined here as "indifference," echoing the early Christian use of the word as referring to one's struggle with temptation in the spiritual life. Active indifference became a way of focusing one's attention on that which was most worthy of love.

- (n7.) Cf. Joseph Tetlow, S.J., *Ignatius Loyola: Spiritual Exercises* (New York: Crossroad, 1992), 54-55.
- (n8.) T. S. Eliot, *The Complete Poems and Plays* (New York: Harcourt, Brace, & World, 1971), 61.
- (n9.) John Climacus, *Ladder of Divine Ascent*, steps 20, 29.
- (n10.) Baba Batra 73b, quoted in Joshua Schwartz, "Sinai in Jewish Thought and Tradition," *Immanuel: A Bulletin of Religious Thought and Research in Israel* 13 (Fall 1981): 8.
- (n11.) Walter Kaufmann argues that, in Islam, religious architectural design suggests to the worshiper what is "left out" in the process of entering a courtyard to pray. *Religions in Four Dimensions* (New York: Reader's Digest Press, 1976), 373.
- (n12.) Carol Ochs urges that "all of the time spent in the desert after the Sinaitic revelation was time spent in education for remaining open to Presence amidst daily life." Cf. "The Presence in the Desert," *Cross Currents* 43, no. 3 (Fall 1993): 305.
- (n13.) John Cassian, *Conferences*, XXIV, 3, 4, 12.
- (n14.) Tom Brown, Jr., *The Tracker* (Englewood Cliffs, N.J.: Prentice-Hall, 1978), 16.
- (n15.) Saint Exupery, *Wind, Sand and Stars*, 138.
- (n16.) Joseph Wood Krutch, *The Desert Year* (New York: William Sloane Associates, 1951), 4.
- (n17.) Alan Jones, *Soul Making: The Desert Way of Spirituality* (San Francisco: Harper & Row, 1985), 89.
- (n18.) *New York Times*, February 14, 1960, 1:6.
- (n19.) W. L. Rusho, *Everett Ruess: A Vagabond for Beauty* (Layton, Utah: Peregrine Smith Books, 1983).
- (n20.) Stanley Hauerwas and William Willimon, *Resident Aliens* (Nashville: Abingdon, 1992), 93.
- (n21.) *Apophthegmata Patrum*, Macarius of Egypt, 23. P.G. LXV, 272C.
- (n22.) In this vein Thomas Merton spoke of the contemplative as cutting against the grain of a dominant culture. *The Wisdom of the Desert* (New York: New Directions, 1960), 4-5.
- (n23.) William Golding, *The Paper Men* (New York: Farrar, Straus, & Giroux, 1984), 155.
- (n24.) Wallace Stegner, *The Sound of Mountain Water* (New York: E. P. Dutton, 1980), 153.
- (n25.) The desert Christians discovered solace as well as harshness in the desert landscape. Athanasius's *Life of Antony* shows him taking joy in its lonely recesses. Cf. Susan P. Bratton, "The Original Desert Solitaire: Early Christian Monasticism and Wilderness," *Environmental Ethics* 10, no. 1 (Spring 1988): 31-53.
- (n26.) Andrew Harvey, *A Journey in Ladakh* (Boston: Houghton Mifflin, 1983), 93.
- (n27.) A similar theme is found in Farid Ud-Din Attar's "The Conference of the Birds." Cf. Belden C. Lane, "In Quest of the King: Image, Narrative, and Unitive Spirituality in a Twelfth-Century Sufi Classic," *Horizons* 14, no. 1 (Spring 1987): 39-48.

(n28.) The phrase is that of Fr. Zosima in Dostoyevsky's *The Brothers Karamazov*.

(n29.) Mark Twain, *Roughing It* (Hartford: American Publishing Co., 1872), 388.

(n30.) D. H. Lawrence, *Phoenix: The Posthumous Papers* (London, 1936), 141-47.

(n31.) For reflections on desert experience in the Jewish scriptures, cf. Shemaryahu Talmon, "The 'Desert Motif' in the Bible and in Qumran Literature," in Alexander Altmann, *Biblical Motifs: Origins and Transformations* (Cambridge: Harvard University Press, 1966); Graham I. Davies, *The Way of the Wilderness: A Geographical Study of the Wilderness Itineraries in the Old Testament* (New York: Cambridge University Press, 1979). Rabbinic interpretations of the desert are considered in Louis Ginzberg's *Legends of the Jews* (Philadelphia: Jewish Publication Society of America, 1911), 3:3641.

(n32.) Edward Abbey, *Desert Solitaire* (New York: McGraw Hill, 1968), 192. The phrase is taken from the last line of Spinoza's *Ethics*.

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## Depleted Uranium: Pernicious Killer Keeps on Killing

By Craig Etchison, Ph.D.

t r u t h o u t | Guest Contributor  
Monday 19 February 2007

### The Questions

I live a few miles from an ATK (Alliant Tech) plant that produces depleted uranium (DU) tank shells for the military. Tank shells destroy and kill, and they, along with all military hardware, are a constant reminder of our failure as a civilization. But DU weapons and tank shells are only two of many items that raise questions that even our violence prone society needs to address. Since shortly after Gulf War I, soldiers and civilians have been questioning the safety of these weapons which are made of radioactive material. The more questions raised, the more the military-industrial complex has hauled out studies showing the safety of DU munitions. One CEO called DU the "skim milk" of uranium in an article penned for my local paper. An Air Force officer is even stalking the internet, trying to intimidate anyone who suggests DU is anything but benign.

Yet the numbers suggested that something insidious happens when DU munitions are used. How to explain the exploding rates of cancer, birth defects, and radiation poisoning among Iraqis in the Basra region? How to explain a Department of Veterans Affairs study of 21,000 veterans of the Gulf War that found rates of birth defects were twice as great for male vets and three times as great for female vets who served in the Gulf War compared to vets who did not? How to explain a Washington Post report in January of 2006 that 518,00 of the 580,000 Gulf War veterans were on disability, over half on permanent disability. How to explain over 13,000 dead Gulf War veterans when only 250 were killed and 7,000 injured in the war itself?

Finally, through the work of internationally recognized research scientist, Dr. Rosalie Bertell, we may have an answer to these questions. The answer has to do with using an analytical methodology appropriate to low level radiation, as opposed to inappropriate methodologies used to date that show DU is harmless, and, equally important, understanding that DU has both a radiological component as well as a heavy metal component, and the two in combination are far more toxic than either is singly.

### What is DU and Why Is It a Problem?

Depleted Uranium (DU) is the waste left after the isotope uranium-235 (used for bombs and nuclear reactors) has been removed. DU (mostly U-238) makes up the largest amount of radioactive waste other than uranium mining waste worldwide and has a half-life of 4.5 billion years. In the United States, DU can only be handled by persons trained in radiation safety procedures. DU must also be isolated from the environment.

Much of the scientific evaluation of uranium oxide has come from analysis of uranium mining and milling, but this ignores a major fact-that battlefield uranium oxide is very different from uranium oxide produced at normal temperatures. When a DU shell hits a hardened target, it bursts into flame and creates an invisible metal fume, often called an aerosol. (Tests carried out eight to ten years after Gulf War I found that the DU aerosol from the battlefield had been carried to Basra and Baghdad, though no fighting occurred in those areas.)

Aerosolizing DU involves temperatures between 3,000 and 6,000 degrees centigrade, which turn the oxide into a nano-sized ceramic particle that is insoluble in body fluids. If these nano particles are inhaled, they provide contact radiation and a source of heavy metal poisoning. These high temperatures will also aerosolize other heavy metals in the area such as steel, nickel, aluminum, and iron, which can be inhaled. Nano-sized uranium oxide [along with other metals] is roughly the size of a virus [scientifically: nanometer-sized], invisible, able to penetrate the lung-blood barrier and can be carried throughout the body. Nano particles can reach sensitive targets, including the lymph nodes, spleen, heart, and access to the central nervous system.

Uranium-238 is an alpha particle emitter. The range of these alpha particles is only about six cells; therefore, it is highly localized. Because DU has less radioactivity than natural uranium, many consider DU to be low-level radiation and not harmful to people. But research does not bear this view out.

### Assessing the Effects of DU

A major problem with most DU assessment is that many effects of alpha radiation on cell structure, including DNA proteins that release biochemical signals and important cell metabolic enzymes, are ignored by nuclear physicists who use dose estimates based on uranium dust in mines, a completely inappropriate approach for a

battlefield aerosol. Many medical professionals believe the protein problem is responsible for various neurodegenerative diseases evidenced by Gulf War veterans.

As Dr. Bertell writes, "Heavy metal exposure (including uranium) can cause loss of cellular immunity, autoimmune diseases, joint disease such as rheumatoid arthritis, and diseases of the kidneys, circulatory system, and nervous system.... Decline in functional mitochondria is most damaging to the heart, kidney, brain, liver, and skeletal muscle, in that order." Loss of cellular immunity opens an organism up to viral, bacterial, and mycoplasmal invasions connected to a variety of diseases.

Equally important, scientists have found that tiny amounts of DU too small to be toxic and only mildly radioactive seem to reinforce each other in terms of causing cancers and risk to offspring. The Armed Forces Radiobiological Research Institute has even admitted that DU can cause cancer.

Humans are normally exposed to about 1.9 micrograms of uranium a day in food and water, with between one and two percent absorbed. The rest is passed in feces. Humans screen natural uranium quite effectively. But our screening system won't eliminate nano particles that are ceramic and enter through the lungs. These particles won't dissolve and won't lose their radioactivity.

#### International Condemnation

The special investigator of the UN Sub-Committee on the Promotion and Protection of Human Rights has declared DU munitions illegal under existing humanitarian law. DU weapons also produce a toxic metal fume that violates the Geneva Protocol on the Use of Gas in War, which the US signed in 1975.

#### Why Ignore the Evidence?

We have enough evidence to suggest with considerable certainty that DU munitions break the four basic laws and customs that govern modern weapons use: that the weapon is confined to the battlefield, that it does not kill after a battle is over, that it doesn't cause inhumane suffering, and that it doesn't have a negative effect on the natural environment. We certainly have enough evidence to stop using these weapons until further research by independent scientists has been done. And yet we continue to produce, sell, and use DU munitions. How can this be justified?

Perhaps looking at the paradigm of Agent Orange gives insight. Our government ignored veterans affected by Agent Orange for thirty years before admitting Agent Orange was, in fact, the cause of many physical problems endured by Vietnam veterans. By then, the most seriously affected veterans were dead. The government incurred a far smaller financial liability than if the government had owned up to the problems earlier.

If the government ever admitted what it has done in Iraq-between 1,000 and 2,000 tons of DU ordnance expended according to most estimates-the financial consequences, not to mention the moral outrage engendered, is almost beyond imagination. Cleaning up the DU blanketing Iraq would entail enormous costs. And in a few years, soldiers who have served in the current debacle-many with two or three tours-are going to start coming down with the same diseases that have struck Gulf War I veterans. Some who got good doses of DU have already seen their lives ruined by multiple physical problems.

We must also consider the real possibility of Iraq as an uninhabitable wasteland, with the residue of the DU aerosol blowing in the wind and flowing in the waters to adjacent lands, a residue with a half-life of 4.5 billion years. Is this outlook too bleak?

Dr. Jawad Al-Ali, director of the Oncology Center at the largest hospital in Basra said the following in 2003. "Two strange phenomena have come about in Basra which I have never seen before. The first is double and triple cancers in one patient.... We have 58 families here with more than one person affected by cancer.... My wife has nine members of her family with cancer." He went on to point out that these were families with no history of cancer. After Gulf War I, the United Kingdom's Atomic Energy Authority estimated that DU contamination could kill half a million Iraqis.

#### Conclusions

I suspect the military-industrial complex will stonewall admitting the effects of DU for as long as possible to avoid accepting responsibility, not to mention liability, for their reckless actions. When John Hanchette, a founding editor of USA Today tried to publish stories about DU, he received a phone call from the Pentagon asking him to desist. He was later replaced at USA Today. The World Health Organization's chief expert on radiation and health had his report on DU suppressed. Dr. Asaf Durakovic, then a colonel in the U.S. Army, was asked to lie about the risks of DU to humans. So the stonewalling will continue, even as cancers rage among our

soldiers and Iraqi civilians, even as our soldiers die, or commit suicide to escape the horrific pain, even as birth defects proliferate across Iraq and among our veterans.

But what of that? DU is a moneymaker for corporations like ATK. And turning DU into munitions helps the government solve a big problem-what to do with mountains of DU it must store and, by law, keep out of the environment. What better solution than giving it free to the munitions makers, who then sell the munitions back to Uncle Sam at a handsome profit? Everyone wins.

Unless we continue to fight for the truth, and to cry out for justice, our soldiers and Iraqi civilians will suffer and die in increasing numbers. Estimates of how many may die in Iraq are truly staggering - up to 11% of Iraq's 27 million population. This is a massive crime against humanity that remains in the shadows.

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For More Information:

Much of this article is based on the work of Dr. Rosalie Bertell. See her article, "Depleted Uranium: All the Questions About DU and Gulf War Syndrome Are Not Yet Answered," in the International Journal of Health Services, Volume 36, Number 3, pages 503-520, 2006. E-mail requests for a summary of Dr. Bertell's article can be sent to [cetchison@allegany.edu](mailto:cetchison@allegany.edu).

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## Health Concerns at the Nevada Test Site

by Fred Galluccio

Many people have asked about possible health effects of visiting the Nevada Test Site, either to the entrance where we gather, or for taking a tour of the test site. The answers are not as simple as people would like them to be. We need to weigh the risks of exposure with our reasons for being there and take sensible precautions. Radiation is part of our everyday world even away from the test site and we need to look at the type of contamination we face and its potential effect on us.

Taking Risks

Precautions to take

Health effects on the body

A deeper explanation of radiation

### Taking Risks

We all need to recognize that risks are often relative. We all make choices and decisions regarding risky behavior on a regular basis. Skiing, smoking, traveling by car and other choices contain different risks that many of us are willing to take. As we learn more about the risks, we may change our choices over time.

Many people who come to the test site to pray or to protest subscribe to the principles of non-violence as taught by Gandhi. Gandhi observed that there were many causes for which he was prepared to die, but none for which he was willing to kill. Many who come to the test site are willing to take some risks, with the hope and expectation that the risks they are undertaking will have an effect of reducing the nuclear risks for the rest of the world.

The exposure to external radiation at the test site is relative as well. Recent measurements at the entrance to the Nevada Test Site have shown that the radiation is essentially that of background radiation – radiation emitted from the sun, rocks, and other natural sources. In contrast, measurements at the Sedan Crater deep inside the test site (and a site visited on tours of the test site) reveal that a one-hour exposure is essentially the same as receiving a chest x-ray. Those who fly to the test site are exposed to a larger dosage of external radiation during their flight than they are at the entrance to the test site, since exposure to solar radiation increases with altitude.

We are exposed to external sources of radiation in our daily lives. Background radiation from the sun or from radon comprise two major sources for people in the US. Studies have shown that we are all downwinders; we have all been exposed to radioactive fallout over the years as a result of testing. However, the greatest concentration of fallout landed in the immediate area of the tests. Most of the radioactive particles have been bound up in the soil, but the soil can be disturbed, releasing some particles into the air. Ingesting radioactive particles through eating, drinking, or breathing does present a higher risk at the test site than in other parts of the country.

### Steps and Precautions to Take

#### At the entrance to the test site.

The first precaution that people can take in coming out to the test site is to eat meals that are properly balanced with key elements and minerals, such as calcium and iodine.

Some folks wear surgical masks when there is a lot of wind stirring up dust in the area at the entrance to the test site.

Wash clothes thoroughly after returning from the test site.

### **For those taking a tour.**

Teenagers and young women of childbearing years should probably not take the tour of the test site, even though they might come to the entrance. This is the recommendation of Sr. Rosalie Bertell, an epidemiologist. With increased radiation inside the test site, especially near old craters such as the Sedan Crater, there is an increased risk of ingesting radioactive particles.

People should place a handkerchief over their mouths or wear surgical masks when they get out of the bus at the Sedan Crater.

Wash clothes thoroughly after returning from the test site.

### **In general**

In addition to maintaining an appropriate diet for general well being and resisting disease, it is helpful to maintain a prayerful attitude. Centering prayer is good at relieving stress. Stress reduction is helpful for resisting disease. In particular, pray for:

Those who have been subjected to radioactivity at the site – the military, journalists, and workers.

Those who are downwind from the test site – who were most affected during the testing era.

The healing of mother earth

Those who still see nuclear weapons and testing as necessary.

Those around the world who are expressing opposition to nuclear weapons, particularly those in prison.

### **Health Effects**

Radiation has varying effects on people. Exposure to high doses of radiation usually results in radiation sickness that is apparent soon after the exposure. However, lower doses may affect body chemistry and molecular biology in a way that leads to cancer, which may not be detected for many years. It is impossible to state acceptable exposures with any precision. Different people respond to radiation differently, and the same person may respond to a radiation dose one way when they are healthy and have a balanced diet, but another way when exposed while their body is out of balance due to sickness.

Most radiation standards are based on external exposure or the amount of radiation that penetrates the body and organs through the skin. This is completely different than the dosages that might enter the organs due to ingestion. Once radioactive particles have entered the body through eating, drinking, or breathing, they will be absorbed into the blood stream and pass through various organs. The dosage obviously depends on the amount of material ingested. Each organ responds differently to radiation applied within the organ, compared to external radiation.

Most radiation studies have been for high doses or for intense dosage over short periods of time. Most government scientists have used these data to estimate the effects of low-dosage exposure or exposure over time. They have been coming up with standards that are much more relaxed than epidemiologists like Dr.

Rosalie Bertell agree with. Her studies, and those of others, have been revealing that low dosages can have a greater impact on health than previously thought, especially when the radioactive materials are ingested.

### **How Radiation affects tissues in the body**

When charged particles, such as radioactive particles, enter tissue, they interact with the atoms and molecules in the surrounding area. This interaction is a way for the charged particles to trade charges with other atoms and create new molecules. These molecules then start changing as well. Many of the original molecules are crucial for stability of cells within the body. As the original molecules change, the rest of the cell begins to change as well. These biological changes may be limited to affecting only a few cells, but there can be wider changes that take years to detect. The cells may mutate and reproduce in a mutated version that leads to genetic changes. The cells may also become cancerous and eventually grow into a larger cancer that affects the body. The cells may also simply die or not be affected by the changing molecules.

### **How the radioactive particles got there.**

Radioactive particles that have been the result of atomic testing have settled to earth over a period of time since testing occurred. Some were widely scattered by the wind throughout the United States and farther. Many of these particles have been absorbed into plants, soils, and animals. Most of the alpha particles have short lives and are no longer a threat. However, in the area around the test site, some of these particles have settled in the soil. With rainwater washing the soils, a lot of these have settled in the dry arroyos in the area. They do not generally present a problem unless people stir up the dust in the washes. Government observers have noted that the soils in Nevada appear to have bound (or captured) atomic particles more than the soils near the testing in Australia or elsewhere.

Most radioactive isotopes mimic other elements that the body uses naturally. If our bodies do not contain enough of the proper elements, then the radioactive elements will be absorbed in their place. For example, strontium-90 and iodine-131 imitate calcium and iodine. If the body does not have a sufficient amount of iodine, then the strontium will enter the body and be absorbed like iodine would. As the strontium releases its radioactive charge, it can damage the cells.

### **Basics in chemistry and radiation**

All materials tend to decay and revert to their original form over time. Normally this is not a problem. Iron products tend to oxidize to form iron oxide, which is the condition in which iron ore is found. This process of rusting is a reversion to a more natural state. When some elements decay, they emit radioactive particles while in the process of decaying and changing to another material.

Some of the decay by-products are themselves radioactive. Each element has a different rate of decay and produces different types of radioactivity during the process. The decay rate is usually measured in a unit known as a *half-life*. The half-life of an element is the length of time it will take for half of the mass to decay into other products. At the end of the half-life, there is still half of the mass that is giving off radioactivity, so many half-lives are needed to reduce the material to a state that does not emit radioactivity. Additionally, many of the by-products are themselves radioactive. Each one of those materials has its own half-life.

### **Other possible steps**

In examining data about nuclear exposure and its effects on the body, there is a wide range of interpretation of the same data. Much of the information distributed by the government about the safety from radiation at the test site refers to general exposure and background radiation. Yet the workers at the Test Site and Yucca are very aware of the dangers of ingesting radioactive particles.

Many who attend events at the Test Site are also proponents of healthy nutrition and diets. Some people have suggested that there are dietary precautions that can protect or avert the dangers of the effects of ingested particles. As mentioned above, some of the radioactive particles imitate other minerals in the body, so that they get absorbed in the system and do damage. Some people believe that by eating miso soup, or ingesting larger amounts of iodized salt before a visit, or by taking supplemental calcium and other minerals, the body will contain enough nutrients so that the radioactive particles do not get absorbed. This is a theory, but it is a theory that has not been established or verified through controlled testing of nutrition on the body. Overall, NDE suggests that everyone attending events consider the risks and evaluate why they are visiting the Test Site and how the risks balance the effect that the public witness will have.

# Western States Legal Foundation

## Nevada Desert Experience

Information Bulletin Summer 2005 update

## The Nevada Test Site: Desert Annex of the Nuclear Weapons Laboratories

### Introduction

The Nevada Test Site (NTS), an immense tract of desert and mountains northwest of Las Vegas, is the test range where the United States government set off over 900 nuclear explosions during the Cold War phase of the arms race. For most Americans, the Test Site is only a symbol of a closed chapter of history, a time of great danger that now is over. Even those who know that the Nevada Test Site still is used for “subcritical” testing of nuclear weapons materials and components underground may think operations largely have been suspended, with unused facilities retained only against the eventuality of a return to full scale underground nuclear testing. But the Test Site remains an important part of the nuclear weapons complex, both a remote site where dangerous activities can be conducted with little public knowledge and a weapons laboratory unto itself. High risk programs involving nuclear material, such as nuclear criticality experiments, are slated for transfer to the Test Site, and it also is being considered as a location for a proposed factory to mass produce plutonium pits, the atomic explosive “triggers” at the core of most nuclear weapons. In addition, a wide range of other weapons testing takes place at NTS, ranging from flight testing of unmanned air vehicles to new types of conventional explosives. And as is true today of many military research laboratories, the NTS has an increasingly entrepreneurial culture, run with an eye to increasing its “market share” of tax dollars for its for-profit corporate managers.

### Nuclear Testing at the Nevada Test Site: Out of Sight, but Never Ending

The first nuclear explosion at the Nevada Test Site, code-named Able, was conducted on January 27, 1951. Since then, 99 more tests were detonated aboveground there, and 804 were done underground. Twenty four underground tests were conducted jointly with the United Kingdom, which used NTS for the development of its own considerable nuclear arsenal. Some underground tests involved more than one nuclear explosion.<sup>1</sup> In a nuclear arms race that saw the development of weapons ranging from bombs that could destroy entire cities to atomic explosives that could be fired from an artillery shell, a mind-boggling array of nuclear tests were conducted. Nuclear explosives were “dropped from planes, shot as rockets, detonated on the surface, shot from a cannon, placed on top of towers, and suspended from balloons.”<sup>2</sup> Structures like houses and underground parking garages were built and subjected to nuclear detonations to study the effects of nuclear war on cities. Animals were penned up where they would be burnt, blasted, or irradiated to death, and thousands of soldiers were deployed to the site to study their response to a nearby nuclear explosion. Much of the population of the United States, living in the great part of the country east of Nevada, were unknowing participants in these experiments as well, with fallout distributed thousands of miles downwind.<sup>3</sup>

1,000+  
U.S.  
NUCLEAR  
TESTS  
SINCE  
1945

✧ denotes  
“subcritical”  
test

Aardvark 1962  
Abeytas 1970  
Abilene 1988  
Able 1946  
Able 1951  
Able 1951  
Able 1952  
Abo 1985  
Absinthe 1967  
Ace 1964  
Acushi 1963  
Adobe 1962  
Adze 1968  
Agile 1967  
Agouti 1962  
Agrini 1984  
Ahtanum 1963  
Ajax 1966  
Ajo 1970  
Akavi 1981  
Akbar 1972  
Alamo 1988  
Aleman 1986  
Algodones 1971  
Aligote 1981  
Aliment 1969  
Allegheny 1962  
Alma 1962  
Almendro 1973  
Alpaca 1965  
Alumroot 1973  
Alva 1964  
Alviso 1975  
Amarillo 1989  
Anacostia 1962  
Anchovy 1963  
Androscoggin 1962  
Angus 1973  
Annie 1953  
Antler 1961  
Apache 1956  
Apodaca 1971  
Apple-1 1955  
Apple-2 1955  
Aphshapa 1963  
Arabis-Blue 1970  
Arabis-Green 1970  
Arabis-Red 1970  
Argus I 1958  
Argus II 1958  
Argus III 1958  
Arikaree 1962  
Arkansas 1962  
Armada 1983  
Armadillo 1962  
✧ Armando 2004  
Arnica-Violet 1970  
Arnica-Yellow 1970  
Arsenate 1972  
Artesia 1970  
Asco 1978  
Asiago 1976  
Aspen 1958  
Atarque 1972  
Atrisco 1982  
Auger 1968  
Auk 1964  
Austin 1990  
Avens-Alkermes 1970  
Avens-Andorre 1970  
Avens-Asamlte 1970  
Avens-Cream 1970  
Aztec 1962  
Azul 1979  
Baccarat 1979  
Backbeach 1978  
Backgammon 1979  
Backswing 1964  
Badger 1953  
✧ Bagpipe 1998

Baker 1951  
 Baker 1951  
 Baker 1952  
 Baker-2 1951  
 Baltic 1971  
 Bandicoot 1962  
 Baneberry 1970  
 Banon 1976  
 Barbel 1964  
 Barnwell 1989  
 Barracuda 1963  
 Barranca 1971  
 Barsac 1969  
 Baseball 1981  
 Bay Leaf 1968  
 Bee 1955  
 Beebalm 1970  
 Belen 1970  
 Bellow 1984  
 Belmont 1986  
 Benham 1968  
 Bernal 1973  
 Bernalillo 1958  
 Bevel 1968  
 Bexar 1991  
 Biggin 1969  
 Bighorn 1962  
 Bilby 1963  
 Bilge 1975  
 Billet 1976  
 Bit-A 1968  
 Bit-B 1968  
 Bitterling 1964  
 Black 1962  
 Blackfoot 1956  
 Blanca 1958  
 Blenton 1969  
 Bluegill 3 Prime 1962  
 Bluestone 1962  
 Bobac 1962  
 Bobstay 1977  
 Bodie 1986  
 Bogey 1964  
 Boltzmann 1957  
 Bonarda 1980  
 Bonefish 1964  
 Boomer 1961  
 Borate 1987  
 Bordeaux 1967  
 Borrego 1982  
 Bourbon 1967  
 Bouschet 1982  
 Bowie 1990  
 Bowl-1 1969  
 Bowl-2 1969  
 Boxcar 1968  
 Bracken 1971  
 Branco 1983  
 Branco-Herkimer 1983  
 Bravo 1954  
 Brazos 1962  
 Breton 1984  
 Brie 1987  
 Bristol 1991  
 Bronze 1965  
 Brush 1968  
 Buff 1965  
 Buggy-A 1968  
 Buggy-B 1968  
 Buggy-C 1968  
 Buggy-D 1968  
 Buggy-E 1968  
 Bulkhead 1977  
 Bullfrog 1988  
 Bullion 1990  
 Bumping 1962  
 Bunker 1964  
 Burzet 1979  
 Buteo 1965  
 Butternut 1958  
 Bye 1964  
 Caboc 1981  
 Cabra 1983  
 Cabresto 1973  
 Cabrillo 1975  
 Cabriole 1968  
 Cactus 1958  
 Calabash 1969  
 Calamity 1962  
 Cambric 1965  
 Camembert 1975  
 Camphor 1971  
 Campos 1978  
 Can-Green 1970  
 Can-Red 1970  
 Canfield 1980  
 Canjilon 1970  
 Canna-Limoges 1972  
 Canna-Umbrinus 1972  
 Cannikin 1971  
 Canvasback 1964  
 Capitan 1972  
 Caprock 1984  
 Carmel 1963  
 Carnelian 1977

The last full-scale underground nuclear explosion at NTS took place on September 23, 1992. At that time, the U.S. government initiated a voluntary moratorium on nuclear explosive testing, a moratorium that continues to this day. The United States signed the Comprehensive Test Ban Treaty (CTBT) in 1996, but the Senate refused to ratify it, and it has since been repudiated by the Bush Administration.

Although the United States no longer explodes nuclear weapons underground, it continues to conduct a wide range of nuclear weapons research, and to develop and deploy nuclear weapons with new military capabilities. Budgets for the Department of Energy nuclear weapons laboratories today match those during the frenzied Cold War arms buildup, with the labs constructing an array of new nuclear weapons experimental facilities that will provide the capacity to simulate various aspects of nuclear explosions and study the resulting data in unprecedented detail. (See sidebar, Stockpile Stewardship: Nuclear Weapons Research and Production for the 21st Century) The Bush Administration's Fiscal Year 2006 budget request includes funds for work at NTS to allow the United States to resume full scale underground testing more quickly should the government choose to do so.

And despite the absence of full-scale underground nuclear explosions, the Nevada Test Site continues to play a central role in nuclear weapons research. "Subcritical" tests are conducted underground at the NTS U1A complex, a vast warren of tunnels deep beneath the desert. These tests are called "subcritical" because they use fissile materials but there is no self-sustaining nuclear chain reaction. Most subcritical tests employ weapons grade plutonium (Pu-239), which is imploded with high explosives or shocked in various ways.<sup>4</sup> The data from these tests is integrated with that from a variety of other physical experiments in a continuing effort to expand nuclear weapons knowledge that both sustains the huge existing U.S. nuclear arsenal and contributes to efforts to develop nuclear weapons with new capabilities. (See sidebar, Nuclear Testing and the Quest for More Useable Nuclear Weapons).

In addition to providing information useful for nuclear weapons research, subcritical tests also play a central role in keeping the test site in a state of readiness:

Because of such factors as their inclusion of plutonium, their location— almost 1000 feet down at the NTS— and their complexity, the greatest proportion of test readiness is derived from the program of subcritical experiments.<sup>5</sup>

When conducted underground at the same site used for full-scale nuclear weapons tests, subcritical experiments make verification of a test ban more difficult,<sup>6</sup> and manifest to the world both the existence of a vigorous nuclear weapons research program and the intention to retain the capability for full-scale underground tests. As was the case with full scale tests, the Los Alamos and Livermore National Laboratories each conduct subcritical tests, competing in an intramural arms competition intended to sharpen the skills of nuclear weapons design teams and to encourage creative and varied approaches to the constant refinement of weapons of mass destruction. To conduct these and other activities, the nuclear weapons laboratories maintain a permanent presence at the Test Site. In addition, NTS personnel work at the weapons laboratories; they will, for example, hone skills relevant to nuclear testing by developing diagnostics for the National Ignition Facility, an enormous laser fusion project that will create small thermonuclear explosions in a steel containment vessel.<sup>7</sup>

## STOCKPILE STEWARDSHIP: Nuclear Weapons Research and Production for the 21st Century

*...[A]n ability to innovate and produce small builds of special purpose weapons, characteristic of a smaller but still vital nuclear infrastructure, would act to convince an adversary that it could not expect to negate U.S. nuclear weapons capabilities. The development and subsequent modification of the B61-7 bomb—converting a few of them into B61-11 earth penetrator weapons—is a case in point.* John Gordon, Administrator of the National Nuclear Security Administration (NNSA)<sup>8</sup>

The 2001 Nuclear Posture Review called for “revitalized defense infrastructure that will provide new capabilities in a timely fashion to meet emerging threats.”<sup>9</sup> A significant part of this infrastructure is the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) nuclear weapons research, testing, and production facilities. To sustain this vast complex, the U.S. is spending more than six billion dollars a year on the “Stockpile Stewardship” program, including billions on new and more advanced nuclear weapons research and production facilities.

These facilities include:

- The National Ignition Facility (NIF), now nearing completion at the Livermore National Laboratory in California. The NIF is a laser driven fusion machine the size of a football stadium, designed to create very brief, contained thermonuclear explosions. It is slated to be used for a wide range of applications from training weapons designers in nuclear weapons science to nuclear weapons effects testing. NIF experiments, together with other fusion research being conducted at the nuclear weapons laboratories, could, in the long run, lead to the development of pure fusion weapons, not requiring plutonium or uranium.
- The Dual Axis Radiographic Hydrotest Facility (DARHT). Located at the Los Alamos National Laboratory in New Mexico, DARHT is one of several facilities where mockups of primaries or “pits,” the first stage of a thermonuclear weapon, are imploded while very fast photographic or x-ray images are generated, thus allowing scientists to “see” inside the implosion. DOE/NNSA already is developing technology for an even more sophisticated “hydrodynamic testing” facility, the Advanced Hydrotest Facility.
- Pulsed power technologies: Further experiments exploring the extreme conditions created in a nuclear weapon explosion are studied using various types of “pulsed power,” in which a large amount of energy is stored up and then released very quickly in a small space. The energy source can be chemical high explosives or stored electrical energy. Pulsed power facilities at both DOE and Department of Defense laboratories are used to explore nuclear weapons function and effects and directed energy weapons concepts, and could play a role in the development of a wide range of high technology weapons, including new types of nuclear weapons.

The data streams from these and other experimental facilities, along with that from “subcritical” tests conducted at the Nevada Test Site and the archived data from over 1000 past U.S. nuclear tests, will be integrated via the Advanced Strategic Computing Program. This multi-billion dollar supercomputing program reaches beyond the weapons laboratories, seeking to incorporate the nation’s leading universities into an effort to attract and train yet another generation of nuclear weapons designers. Finally, smaller, modernized nuclear weapons production processes are being developed to allow flexible, small lot manufacturing, with planning underway for a new plutonium pit factory, the Modern Pit Facility, for large-scale production.

The DOE is pursuing a wide range of other programs to modernize its nuclear weapons production infrastructure. These range from a smaller pit manufacturing capability at Los Alamos National Laboratory in New Mexico to upgraded nuclear weapon component manufacturing facilities at Oak Ridge National Laboratory and tritium facilities at Savannah River, Georgia. In addition, the government has begun producing tritium for nuclear weapons at civilian nuclear power plants operated by the Tennessee Valley Authority (TVA). A Department of Energy advisory panel recently recommended an even more ambitious restructuring of the nuclear weapons complex, with manufacturing activities involving nuclear materials and explosives, including plutonium pit production, consolidated at a single facility several decades from now. The panel envisioned the Nevada Test Site as one possible location for this plant, and also recommended consolidating other dangerous activities, such as high explosive testing and certain tests using special nuclear materials, at the Test Site.<sup>10</sup>

Carp 1963  
 Carpetbag 1970  
 Carrizozo 1970  
 Cashmere 1965  
 Casselman 1963  
 Cassowary 1964  
 Cathay 1971  
 Catron 1958  
 Cebolla 1972  
 Cebrero 1985  
 Cedar 1958  
 Centaur 1965  
 Ceres 1958  
 Cerise 1966  
 Cernada 1981  
 Cerro 1982  
 Chaenactis 1971  
 Chama 1962  
 Chamita 1985  
 Chancellor 1983  
 Chantilly 1971  
 Charcoal 1965  
 Charleston 1957  
 Charlie 1951  
 Charlie 1952  
 Chartreuse 1966  
 Chateaugay 1968  
 Chatty 1969  
 Chavez 1958  
 Checkmate 1962  
 Cheedam 1983  
 Chena 1961  
 Chenille 1965  
 Cherokee 1956  
 Cheshire 1976  
 Chess 1979  
 Chetco 1962  
 Chevre 1976  
 Chiberta 1975  
 Chinchilla 1962  
 Chinchilla II 1962  
 Chipmunk 1963  
 Chocolate 1967  
 Cimarron 1962  
 ✧ Cimarron 1998  
 Cinnamon 1966  
 Clairette 1981  
 ✧ Clarinet 1999  
 Clarksmobile 1968  
 Clean Slate I 1963  
 Clean Slate II 1963  
 Clean Slate III 1963  
 Clearwater 1963  
 Climax 1953  
 Club 1964  
 Clymer 1966  
 Coalora 1983  
 Cobbler 1967  
 Codsaw 1962  
 Coffar 1969  
 Cognac 1967  
 Colby 1976  
 Colfax 1958  
 Colmor 1973  
 Colwick 1980  
 Commodore 1967  
 Comstock 1988  
 Concentration 1978  
 Contact 1989  
 Corazon 1970  
 Corduroy 1965  
 Cormorant 1964  
 Cornice-Green 1970  
 Cornice-Yellow 1970  
 Cornucopia 1986  
 Correo 1984  
 Coso-Bronze 1991  
 Coso-Gray 1991  
 Coso-Silver 1991  
 Cottage 1985  
 Coulomb-A 1957  
 Coulomb-B 1957  
 Coulomb-C 1957  
 Coulommiers 1977  
 Courser 1964  
 Cove 1977  
 Cowles 1972  
 Coypu 1963  
 Cremino 1978  
 Cremino-Caerphilly 1978  
 Crepe 1964  
 Crestlake-Briar 1974  
 Crestlake-Tansan 1974  
 Crew 1968  
 Crew-2nd 1968  
 Crew-3rd 1968  
 Crewline 1977  
 Crock 1968  
 Crowdie 1983  
 Cruet 1969  
 Cuchillo 1972  
 Culantro-A 1969  
 Culantro-B 1969  
 Cumarin 1970  
 Cumberland 1963

## The Nevada Test Site: Weapons Lab Today, Weapons Factory Tomorrow?

In addition to weapons experiments that take advantage of the infrastructure and skills developed for underground nuclear testing and that help sustain capabilities, the Nevada Test Site supports a growing array of nuclear weapons facilities:<sup>11</sup>

- The Big Explosive Experiment Facility (BEEF) allows non-nuclear high explosive tests too powerful to be conducted at high explosive testing facilities at the nuclear weapons labs in Livermore and Los Alamos. BEEF can be used to tests new types or configurations of conventional explosives, and also for “hydrodynamic” experiments, in which the high explosive components of nuclear weapons can be tested, using substitutes for fissile materials that are similar in their physical characteristics but will not result in a nuclear explosion.
- The Joint Actinide Shock Physics Experimental Research Facility (JASPER) is a large gas gun that tests the characteristics of plutonium and other materials by blasting them with high speed projectiles.
- The Atlas pulsed power facility, relocated from the Los Alamos National Laboratory, instantaneously releases large amounts of stored electrical energy in a small space to simulate certain aspects of nuclear explosions, will be to NTS. It resumed operation in July 2005.
- The Device Assembly Facility (DAF), a complex of thirty buildings reinforced with steel and covered with earth, is one of the two sites, together with the Pantex Plant in Texas, where special nuclear materials– plutonium and uranium– can be combined into either nuclear weapons or configurations for nuclear weapons tests, such as the subcritical experiments conducted at NTS. The DAF originally was built to assemble nuclear weapons for underground tests, and is jointly operated by the Los Alamos and Livermore National Laboratories. Located far from population centers and surrounded by layers of security, the DAF is one of the largest and most modern facilities available to the U.S. government for operations involving both nuclear materials and high explosives, including assembly of nuclear weapons. A 2005 Secretary of Energy Advisory Board Report has recommended that the DAF be used to assemble the proposed next generation of “Reliable Replacement Warheads” until a new nuclear weapons assembly plant is built.<sup>12</sup>

With no full scale underground tests on the immediate horizon, the DAF is being given other roles involving nuclear materials. Test assemblies for subcritical experiments are put together at the DAF. Criticality experiments, which involve significant quantities of such weapons useable materials as highly enriched uranium and which study the behavior of these materials at or near the conditions where they generate a self-sustaining nuclear chain reaction, are being transferred to the DAF from Los Alamos. Some criticality experiments still may be conducted at Los Alamos, but those involving larger quantities of weapons-useable nuclear material will be moved to NTS. The move is expected to involve relocation to NTS of 2.6 tons of special nuclear material (probably plutonium and enriched uranium), as well as 11 tons of depleted uranium and thorium.<sup>13</sup>

The Nevada Test Site also is being considered as one possible location for the Modern Pit

Facility, a factory to mass produce plutonium pits, the key component of the atomic explosive trigger at the heart of most modern nuclear weapons. Current plans call for a facility that could produce at least 125 pits per year, with the capacity both for a larger “surge” capability and for “modular expansion” to increase base capacity without costly modifications.<sup>14</sup> By comparison, China, the world’s third leading nuclear power after the United States and Russia, is believed to have about 400 nuclear weapons.<sup>15</sup> And even if the Modern Pit Facility isn’t built at NTS, the Test Site’s managers, Bechtel Corporation, are determined to compete for an ever larger piece of the burgeoning high-tech weapons pie. As Frederick Tarantino, President and General Manager for NTS manager Bechtel Nevada, put it, “[i]f we don't get it, that's OK.... We'll go after something just as a large.”<sup>16</sup>

### Nuclear Weapons Testing on Indigenous Lands

The existence of nuclear weapons in the world causes ecological devastation, even if they never are used in warfare. A half century of testing has contaminated vast reaches of the planet, and has resulted in millions of premature deaths by causing birth defects, cancer, and other diseases. Nuclear explosions at the Nevada Test Site have left millions of curies of strontium, cesium, and plutonium underground. In addition, hundreds of thousands of cubic yards of radioactive waste have been buried at NTS. Above ground nuclear testing, along with plutonium dispersal experiments and depleted uranium ammunition testing, caused additional contamination. For an overview of radioactive contamination at NTS, see Arjun Makhijani, Howard Hu, and Katherine Yih, *Nuclear Wastelands: A Global Guide to Nuclear Weapons Production and its Health and Environmental Effects*, (Cambridge, Massachusetts, MIT Press: 1995), pp.224-227

*“...[Of] the eight nations in the world that have detonated nuclear weapons during the last 55 years, five have used the lands of indigenous peoples. The United States, Russia, Britain, France and China have tested their nuclear might on lands held sacred by the people of First Nations. The Western Shoshone nation of North America, the Marshall Islanders, and other South Pacific Islanders, Australian Aborigines, the Kazakhs, and Tibetans are but a few of those whose land has been consistently contaminated with nuclear poison...”* Richard Salvador, Pacific Islands Association of NGOs, NGO Presentation, “Indigenous Perspective,” to the NPT Review Conference Preparatory Committee, New York, April 2002

*“No Developed nation tests its nuclear weapons on its own lands. All nuclear testing is done on indigenous people’s lands... The Western Shoshone are the rightful custodians of this land, affirmed by the Treaty of Ruby Valley in 1863. With over 900 bombs exploded, they are the most bombed nation in the world.”* Raymond D. Yowell, Chief, Western Shoshone National Council, Healing Global Wounds event invitation, The Test Banner, American Peace Test, Summer/Fall 1992.

For more on the impacts of nuclear weapons research, development, testing and production on indigenous peoples world wide, see the the fact sheet and resource links, “Indigenous People and the Nuclear Age: Making the Connections,” prepared by the Women’s International League for Peace and Freedom, at <http://www.reachingcriticalwill.org/technical/factsheets/indigenous.html>

Cup 1965  
 Cyathus 1970  
 Cybar 1986  
 Cyclamen 1966  
 Cypress 1969  
 Dalhart 1988  
 Daiquiri 1966  
 Dakota 1956  
 Daman I 1962  
 Danablu 1983  
 Danny Boy 1962  
 Darwin 1986  
 Dauphin 1980  
 De Baca 1958  
 Dead 1962  
 Deck 1975  
 Delamar 1987  
 Delphinium 1972  
 Derringer 1966  
 Des Moines 1962  
 Dexter 1971  
 Diablo 1957  
 Diablo Hawk 1978  
 Diagonal Line 1971  
 Diamond Ace 1982  
 Diamond Beech 1985  
 Diamond Dust 1970  
 Diamond Fortune 1992  
 Diamond Mine 1971  
 Diamond Sculls 1972  
 Diana Mist 1970  
 Diana Moon 1968  
 Dianthus 1972  
 Dido Queen 1973  
 Diesel Train 1969  
 Diluted Waters 1965  
 Dining Car 1975  
 Discus Thrower 1966  
 Disko Elm 1989  
 Distant Zenith 1991  
 Divider 1992  
 Dixie 1953  
 Dofino 1977  
 Dofino-Lawton 1977  
 Dog 1951  
 Dog 1951  
 Dog 1952  
 Dogwood 1958  
 Dolcetto 1984  
 Dona Ana 1958  
 Door Mist 1967  
 Doppler 1957  
 Dormouse 1962  
 Dormouse Prime 1962  
 Dorsal Fin 1968  
 Double Play 1966  
 Double Tracks 1963  
 Dovekie 1966  
 Draughts 1978  
 Drill 1964  
 Drill 1964  
 Driver 1964  
 Dub 1964  
 Duffer 1964  
 Dulce 1962  
 Dumont 1966  
 Duoro 1984  
 Duryea 1966  
 Dutchess 1980  
 Eagle 1963  
 Easy 1951  
 Easy 1951  
 Easy 1951  
 Easy 1952  
 Ebbtide 1977  
 Edam 1975  
 Eddy 1958  
 Eel 1962  
 Effendi 1967  
 Egmont 1984  
 Elder 1958  
 Elida 1973  
 Elkhart 1965  
 Embudo 1971  
 Emerson 1965  
 Emmenthal 1978  
 Encino 1962  
 Encore 1953  
 Erie 1956  
 Ermine 1962  
 Escabosa 1974  
 Esrom 1976  
 Ess 1955  
 Estaca 1974  
 Estuary 1976  
 Evans 1958  
 Fade 1964  
 Fahada 1983  
 Fajy 1979  
 Fallon 1974  
 Farallones 1977  
 Farm 1976  
 Faultless 1968  
 Fawn 1967  
 Feather 1961

|                             |                     |
|-----------------------------|---------------------|
| Fenton 1966                 | Hickory 1958        |
| Ferret 1963                 | Hidalgo 1958        |
| Ferret Prime 1963           | Hod-A 1970          |
| Fig 1958                    | Hod-B 1970          |
| File 1968                   | Hod-C 1970          |
| Finfoot 1966                | Hognose 1962        |
| Fir 1958                    | Holly 1958          |
| Fisher 1961                 | ✶Holog 1997         |
| Fizeau 1957                 | Hood 1957           |
| Fizz 1967                   | Hook 1964           |
| Flask-Green 1970            | Hoopoe 1964         |
| Flask-Red 1970              | Hoosic 1962         |
| Flask-Yellow 1970           | Horehound 1969      |
| Flathead 1956               | Hornet 1955         |
| Flax-Backup 1972            | Hornitos 1989       |
| Flax-Source 1972            | Hospah 1971         |
| Flax-Test 1972              | Hosta 1982          |
| Flora 1980                  | Housatonic 1962     |
| Flotost 1977                | Houston 1990        |
| Floydada 1991               | How 1952            |
| Fob-Blue 1970               | Hoya 1991           |
| Fob-Green 1970              | Hudson 1962         |
| Fob-Red 1970                | Hudson Moon 1970    |
| Fondutta 1978               | Hudson Seal 1968    |
| Fontina 1976                | Hula 1968           |
| Fore 1964                   | Hulsea 1974         |
| Forefoot 1977               | Humboldt 1958       |
| Forest 1964                 | Hunters Trophy 1992 |
| Fox 1951                    | Hupmobile 1968      |
| Fox 1952                    | Huron 1956          |
| Franklin 1957               | Huron King 1980     |
| Franklin Prime 1957         | Huron Landing 1982  |
| Freezeout 1979              | Husky Ace 1973      |
| Frigate Bird 1962           | Husky Pup 1975      |
| Frijoles-Deming 1971        | Hutch 1969          |
| Frijoles-Espuela 1971       | Hulla 1963          |
| Frijoles-Guaje 1971         | Hybla Fair 1974     |
| Frijoles-Petaca 1971        | Hybla Gold 1977     |
| Frisco 1982                 | Hyrax 1962          |
| Funnel 1968                 | Iceberg 1978        |
| Futtock 1975                | Ildrim 1969         |
| Galena-Green 1992           | Imp 1968            |
| Galena-Orange 1992          | Inca 1956           |
| Galena-Yellow 1992          | Ingot 1989          |
| Galileo 1957                | Inlet 1975          |
| Galveston 1986              | Ipecac-A 1969       |
| Ganymede 1958               | Ipecac-B 1969       |
| Garden 1964                 | Islay 1981          |
| Gasbuggy 1967               | Item 1951           |
| Gascon 1986                 | Izzer 1965          |
| Gazook 1973                 | Jackpots 1978       |
| George 1951                 | Jal 1970            |
| George 1952                 | Jara 1974           |
| Gerbil 1963                 | Jarlsberg 1983      |
| Gibne 1982                  | Jefferson 1986      |
| Gibson 1967                 | Jerboa 1963         |
| Gilroy 1967                 | Jib 1974            |
| Glencoe 1986                | Jicarilla 1972      |
| Gnome 1961                  | John 1957           |
| Goldstone 1985              | Johnnie Boy 1962    |
| Gorbea 1984                 | Jornada 1982        |
| Gouda 1976                  | Jorum 1969          |
| Gourd-Amber 1969            | Junction 1992       |
| Gourd-Brown 1969            | Juniper 1958        |
| Grable 1953                 | Juno 1958           |
| Grape A 1969                | Kankakee 1966       |
| Grape B 1970                | Kappeli 1984        |
| Greeley 1966                | Kara 1972           |
| Greys 1963                  | Karab 1978          |
| Grove 1974                  | Kash 1980           |
| Grunion 1963                | Kashan 1973         |
| Gruyere 1977                | Kasserl 1975        |
| Gruyere-Gradino 1977        | Kaweah 1963         |
| Guanay 1964                 | Kawich A-Blue 1988  |
| Gum Drop 1965               | Kawich A-White 1988 |
| Gundi 1962                  | Kawich-Black 1989   |
| Gundi Prime 1963            | Kawich-Red 1989     |
| HA(High Altitude) 1955      | Kearsarge 1988      |
| Haddock 1964                | Keel 1974           |
| Halfbeak 1966               | Keelson 1976        |
| Hamilton 1958               | Kennebec 1963       |
| Handcar 1964                | Kepler 1957         |
| Handicap 1964               | Kermet 1965         |
| Handley 1970                | Kernville 1988      |
| Haplopappus 1972            | Kesti 1982          |
| Hard Hat 1962               | Kestrel 1965        |
| Hardin 1987                 | Khaki 1966          |
| Harebell 1971               | Kickapoo 1956       |
| Harkee 1963                 | King 1952           |
| Harlem 1962                 | Kingfish 1962       |
| Harlingen-A 1988            | Kinibito 1985       |
| Harlingen-B 1988            | Klickitat 1964      |
| Harry 1953                  | Kloster 1979        |
| Harzer 1981                 | Knickerbocker 1967  |
| Hatchet 1968                | Knife A 1968        |
| Hatchie 1963                | Knife B 1968        |
| Havarti 1981                | Knife C 1968        |
| Haymaker 1962               | Knox 1968           |
| Hazebrook- Apricot 1987     | Koa 1958            |
| Hazebrook-Checkerberry 1987 | Kohocton 1963       |
| Hazebrook-Emerald 1987      | Koon 1954           |
| Hearts 1979                 | Kootanai 1963       |
| Heilman 1967                | Kryddost 1982       |
| Hermosa 1985                | Kyack-A 1969        |
|                             | Kyack-B 1969        |
|                             | Laban 1983          |

## A Full Service Test Range

The Nevada Test Site also is used for a variety of military tests besides those linked directly to nuclear weapons development. Over the years, NTS has been used to develop systems ranging from missile re-entry bodies to ballistic missile defense. Depleted uranium munitions were tested at NTS, with experiments including “controlled burns” and live firing.<sup>17</sup> A small facility capable of manufacturing biological weapons was built at the Test Site in the 1990's, as part of a “counterproliferation” program aimed at determining how difficult it would be for countries or non-state organizations to do the same and at developing detection technologies.<sup>18</sup> NTS also operates a hazardous materials spill facility, where large quantities of dangerous chemicals can be released for a variety of purposes, such as developing response and cleanup techniques or sensors to detect chemical weapons or their components.<sup>19</sup> Recent military tests have included unmanned aircraft fitted with sensors to detect chemical weapons<sup>20</sup> and the “thermobaric” bomb, a powerful explosive that was rushed into production for use against tunnels and caves in the Afghanistan war.<sup>21</sup> Tunnel complexes at NTS are being used for a variety of tests aimed at developing additional ways to destroy targets buried in cave and tunnels, such as missile operations or command and control facilities.<sup>22</sup>

## The Nuclear Non-Proliferation Treaty, the Comprehensive Test Ban Treaty, and U.S. Nuclear Weapons Policies

*Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control.* Article VI, Treaty on the Non-Proliferation of Nuclear Weapons, Signed at Washington, London, and Moscow July 1, 1968. Entered into force March 5, 1970.

Ending nuclear testing has been seen as a key stepping stone towards the elimination of nuclear weapons virtually since efforts to control nuclear weapons began. The United States and the other parties to the 1963 Limited Test Ban Treaty, which banned all but underground nuclear test explosions, proclaimed as their “principal aim” the “speediest possible achievement of an agreement on general and complete disarmament under strict international control in accordance with the objectives of the United Nations which would put an end to the armaments race and eliminate the incentive to the production and testing of all kinds of weapons, including nuclear weapons.”<sup>23</sup> The Preamble to the Non-Proliferation Treaty (NPT) recalled the intent expressed in the Limited Test Ban Treaty “to seek to achieve the discontinuance of all test explosions of nuclear weapons for all time,” in the context of a broader effort “to facilitate the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, and the elimination from national arsenals of nuclear weapons and the means of their delivery pursuant to a Treaty on general and complete disarmament

## Nuclear Testing and the Quest for More Useable Nuclear Weapons

The push by elements inside and outside the government for nuclear weapons with new military capabilities slowed for a brief period after end of the Cold War, with Congress placing some restrictions on research on nuclear warheads with a yield below 5 kilotons, and an official Clinton Administration policy of no “new” nuclear weapons. Despite this policy, U.S. nuclear weapons research continued throughout the 90’s. The goals of these efforts were twofold: to develop capacities to destroy difficult types of targets, and to design nuclear weapons that would be politically feasible to use. A 1999 Department of Defense planning document identified as a priority the ability “to provide national leaders with improved options by increasing the responsiveness of strategic forces and developing more discriminate options, as done most recently with the introduction of the B61–11 earth-penetrating weapons.”<sup>24</sup> The B61-11 earth penetrating nuclear bomb, developed in the late 1990’s, was a modification of an existing design. It was developed without underground nuclear explosive testing, using the component testing and computer simulation capabilities of the Department of Energy “Stockpile Stewardship” program.<sup>25</sup> Research also continued on nuclear weapons effects, focusing on the “need to hold evolving enemy targets at risk using the reduced stockpile, and recognizing greatly increasing political and environmental constraints.”<sup>26</sup>

With the ascendance of the Bush Administration, the push for nuclear weapons with new military capabilities has intensified. The 2001 Bush Nuclear Posture Review (NPR), a major policy document that outlined plans for strategic weapons development, stated that

There are several nuclear weapon options that might provide important advantages for enhancing the nation’s deterrence posture: possible modifications to existing weapons to provide additional yield flexibility in the stockpile; improved earth penetrating weapons (EPWs) to counter the increased use by potential adversaries of hardened and deeply buried facilities; and warheads that reduce collateral damage.<sup>27</sup>

In 2003, Congress removed the Clinton-era restrictions on low-yield nuclear weapons research and approved funding for initial research on a Robust Nuclear Earth Penetrator (RNEP).<sup>28</sup> Additional nuclear planning documents leaked in early 2003 revealed that the RNEP is only one of a number of modified or new nuclear weapons under consideration. A January 2003 Pentagon meeting attended by high-ranking officials from the Defense Department and the Energy Department nuclear weapons programs set the agenda for further planning sessions that would evaluate “[r]equirements for low-yield weapons, EPWs, [earth penetrating weapons] enhanced radiation weapons, [and] agent defeat weapons” (weapons intended to destroy chemical or biological agents). Issues to be covered included “[e]ffects modeling capabilities to effectively plan for these weapons,” “testing strategy for weapons more likely to be used in small strikes,” and the “strategy for selecting first “small builds.”<sup>29</sup> Research also is going forward on new strategic missiles with greater range, accuracy, and maneuverability, and with the capability to deliver both nuclear and conventional payloads.<sup>30</sup>

Congressional opposition to continued nuclear weapons research, although largely limited to the development of particular warheads with new capabilities, began to have some effect in 2004, with FY2005 research funds for the RNEP reallocated to other weapons programs. Nonetheless, the Administration again requested funds for the RNEP for FY2006. This funding would cover further design studies as well as impact tests involving the B83 bomb, a weapon with a one megaton yield (although some commentators have speculated that only its fission primary could be employed to provide a reduced 1-10 kiloton yield).<sup>31</sup> The Administration’s FY2006 budget request also includes funding to study integration of the RNEP with the B-2 stealth bomber.<sup>32</sup>

Despite opposition to the RNEP, Congress has approved funding for a program intended to replace the Cold War stockpile with a new generation of modernized nuclear weapons designed to last for many decades to come. This program aims to develop a “Reliable Replacement Warhead,” combining new manufacturing techniques with greater design margins, in some cases taking advantage of the less demanding requirements in terms of yield and weight than was deemed necessary for Cold War missions. If successful, the program could provide a long-lasting nuclear arsenal with capabilities comparable to existing weapons, and possibly additional capabilities crafted for new missions as well.<sup>33</sup>

|                       |                      |
|-----------------------|----------------------|
| Labis 1970            | Muenster 1976        |
| Labquark 1986         | Muggins 1983         |
| Lacrosse 1956         | Muleshoe 1989        |
| Lagoon 1971           | Mullet 1963          |
| Laguna 1971           | Mundo 1984           |
| Lampblack 1966        | Muscovy 1965         |
| Lanpher 1967          | Mushroom 1967        |
| Laplace 1957          | Muskegon 1962        |
| Laredo 1988           | Mustang 1963         |
| Lassen 1957           | Nama-Amaryllis 1971  |
| Latir 1974            | Nama-Mephisto 1971   |
| Lea 1958              | Nambe 1962           |
| Ledoux 1990           | Nancy 1953           |
| Lexington 1967        | Narraguagus 1963     |
| Leyden 1975           | Nash 1967            |
| Lime 1966             | Natches 1963         |
| Linden 1958           | Natoma 1973          |
| Links 1964            | Navajo 1956          |
| Liptauer 1980         | Navata 1983          |
| Little Feller I 1962  | Nebbiolo 1982        |
| Little Feller II 1962 | Nectar 1954          |
| Lockney 1987          | Neptune 1958         |
| Logan 1958            | Nessel 1979          |
| Long Shot 1965        | New Point 1966       |
| Longchamps 1972       | Newark 1966          |
| Lovage 1969           | Newton 1957          |
| Lowball 1978          | Nightingale 1988     |
| Lubbock 1991          | Nipper 1969          |
| Luna 1958             | Niza 1981            |
| Mackerel 1964         | Noggin 1968          |
| Mad 1961              | Noor 1968            |
| Madison 1962          | Norbo 1980           |
| Magnolia 1958         | Normanna 1984        |
| Mallet 1968           | Numbat 1962          |
| Manatee 1962          | Nutmeg 1958          |
| Manteca 1982          | Oak 1958             |
| Manzanas 1970         | Oakland 1967         |
| Maple 1958            | Oarlock 1977         |
| Maribo 1985           | Obar 1975            |
| ✧ Mario 2002          | Oberon 1958          |
| Mars 1958             | ✧ Oboe 1 1999        |
| Marsh 1975            | ✧ Oboe 2 1999        |
| Marshmallow 1962      | ✧ Oboe 3 2000        |
| Marsilly 1977         | ✧ Oboe 4 2000        |
| Marvel 1967           | ✧ Oboe 5 2000        |
| Mast 1975             | ✧ Oboe 6 2000        |
| Mataco 1963           | ✧ Oboe 7 2001        |
| Mauve 1965            | ✧ Oboe 8 2001        |
| Maxwell 1966          | ✧ Oboe 9 2002        |
| Mazama 1958           | Ocate 1972           |
| Memory 1979           | Ochre 1966           |
| Mercury 1958          | Oconto 1964          |
| Merida 1972           | Offshore 1979        |
| Merlin 1965           | Olive 1958           |
| Merrimac 1962         | Onaja 1972           |
| Mescalero 1972        | Orange 1958          |
| Mesilla 1962          | Organdy 1965         |
| Mesita 1973           | Orkney 1964          |
| Met 1955              | Osage 1956           |
| Metropolis 1990       | Oscuro 1972          |
| Mickey 1967           | Otero 1958           |
| Midas Myth/           | Otowi 1962           |
| Milagro 1964          | Owens 1957           |
| Middle Note 1987      | Paca 1962            |
| Midi Mist 1967        | Packard 1969         |
| Midland 1987          | Packrat 1962         |
| Miera 1973            | Paisano 1963         |
| Mighty Epic 1976      | Pajara 1973          |
| Mighty Oak 1986       | Palanquin 1965       |
| Mike 1952             | Palisade-1 1989      |
| Milk Shake 1968       | Palisade-2 1989      |
| Mill Yard 1985        | Palisade-3 1989      |
| Milrow 1969           | Paliza 1981          |
| Mineral Quarry 1990   | Pamlico 1962         |
| Minero 1984           | Pampas 1962          |
| Miners Iron 1980      | Panamint 1986        |
| Ming Blade 1974       | Panchuela 1987       |
| Ming Vase 1968        | Panir 1978           |
| Mini Jade 1983        | Par 1964             |
| Miniata 1971          | Parmassia 1971       |
| Mink 1961             | Parrot 1964          |
| Minnow 1964           | Pascal-A 1957        |
| Mint Leaf 1970        | Pascal-B 1957        |
| Minute Steak 1969     | Pascal-C 1957        |
| Mission Cyber 1987    | Passaic 1962         |
| Mission Ghost 1987    | Peba 1962            |
| Mississippi 1962      | Pederal 1971         |
| Misty Echo 1988       | Pekan 1963           |
| Misty North 1972      | Penasco 1970         |
| Misty Rain 1985       | Pepato 1979          |
| Mizzen 1975           | Pera 1979            |
| Moa 1965              | Persimmon 1967       |
| Mogollon 1986         | Petit 1962           |
| Mohawk 1956           | Petrel 1965          |
| Molbo 1982            | ✧ Piano 2003         |
| Monahans-A 1988       | Piccalilli 1969      |
| Monahans-B 1988       | Pike 1964            |
| Monero 1972           | Pile Driver 1966     |
| Montello 1991         | Pin Stripe 1966      |
| Monterey 1982         | Pine 1958            |
| Mora 1958             | Pineau 1981          |
| Morgan 1957           | Pinedrops-Bayou 1974 |
| Morrones 1970         | Pinedrops-Sloat 1974 |
| Moth 1955             | Pinedrops-Tawny 1974 |
| Mudpack 1964          | Pipefish 1964        |
|                       | Pipkin 1969          |

In 1995, the NPT parties reaffirmed their commitment to the Treaty and set out further steps for implementing its provisions in a set of “Principles and Objectives for Nuclear Non-Proliferation and Disarmament.” The “Principles and Objectives” document reaffirmed the nuclear weapon states’ NPT Article VI obligation and listed the Comprehensive Test Ban (CTBT) first among measures “important in the full realization and effective implementation of Article VI.”<sup>34</sup> The United States signed the CTBT in 1996.

In 1999, the United States Senate voted not to approve ratification of the CTBT, and has chosen not to revisit the matter since that time. The Clinton administration and its allies, rather than trying to rally disarmament supporters as a counterweight to the powerful interests represented by the nuclear weapons complex, had portrayed the CTBT as a means to preserve the decisive technological advantage in nuclear weaponry held by the U.S., and as a way to prevent non-nuclear weapon states from acquiring nuclear weapons, rather than as a step on the road to disarmament. This view was reaffirmed by Secretary of State Madeline Albright even after it had proved a losing strategy in the CTBT ratification campaign: “We simply do not need to test nuclear weapons to protect our security. On the other hand, would-be proliferators and modernizers must test if they are to develop the kind of advanced nuclear designs that are most threatening. *Thus, the CTBT would go far to lock in a technological status quo that is highly favorable to us.*”<sup>35</sup>

In 2000, the NPT parties, including the United States, reiterated their commitment to disarmament, agreeing to a set of “practical steps for the systematic and progressive efforts to implement article VI of the Treaty...” These steps included, once again, ratification of the CTBT, recognition of a “principle of irreversibility” to apply to nuclear disarmament, and “an unequivocal undertaking by the nuclear-weapon States to accomplish the total elimination of their nuclear arsenals leading to nuclear disarmament, to which all States parties are committed under article VI.”<sup>36</sup> Since that time, the U.S. has repudiated the CTBT, ramped up efforts to increase nuclear test readiness, and continued its ambitious program to refurbish its nuclear complex. The goal is to maintain nuclear supremacy in all conceivable circumstances by building facilities able to mass produce nuclear weapons should the “need” some day arise, while at the same time being able to design build new kinds of nuclear weapons quickly:

For example, a future adversary nation seeking to gain some nuclear advantage would be forced to conclude that its buildup could not occur quicker than the United States could act to reconstitute higher force levels. Alternatively, an ability to innovate and produce small builds of special purpose weapons, characteristic of a smaller but still vital nuclear infrastructure, would convince an adversary that it could not expect to negate United States nuclear forces, for example, by seeking to house vital command and control functions in hard, deeply buried installations.<sup>37</sup>

The nuclear weapons laboratory testing and simulation technologies that comprise the U.S. “Stockpile Stewardship” program, and similar though far less ambitious programs in other nuclear weapons states, makes a

Comprehensive Test Ban simultaneously less “comprehensive” and more necessary. A ban on nuclear explosive testing can limit, but not stop, advanced nuclear weapons development. It has little effect on existing arsenals, which can be maintained at high levels of readiness without explosive testing using technology now decades old.<sup>38</sup> The U.S. can upgrade existing nuclear weapons while remaining within the parameters of well-understood concepts and designs.<sup>39</sup> It also is possible that substantial progress can be made towards more extensive design innovations, which could increase pressure for a resumption of testing. This would be of particular concern in a crisis, whether the consequence of real events like the 9-11 attacks or a determined and successful propaganda campaign like that preceding the 2003 Iraq invasion. We have seen that few in Congress will challenge a demand by a sitting President, bolstered by classified information about some looming threat, on matters involving “weapons of mass destruction.” A CTBT that has entered into force, which requires ratification by the United States, among others, could provide something of a “firebreak,” making the decision to resume testing in order to deploy new weapons more consequential.

The Preamble to the Comprehensive Test Ban Treaty expresses the intent of the treaty to cut off the development and modernization of nuclear weapons as a meaningful disarmament measure, recognizing “that the cessation of all nuclear weapon test explosions and all other nuclear explosions, by constraining the development and qualitative improvement of nuclear weapons and ending the development of advanced new types of nuclear weapons, constitutes an effective measure of nuclear disarmament and non-proliferation in all its aspects,” and “that an end to all such nuclear explosions will thus constitute a meaningful step in the realization of a systematic process to achieve nuclear disarmament...”<sup>40</sup>

The CTBT interpreted literally may not ban expansive laboratory testing programs and subcritical tests. But the commitment made by the NWS at the 1995 NPT review and Extension Conference to achieve a CTBT as part of a program for the “effective implementation of article VI,” embodied in a provision which further stated that “[p]ending the entry into force of a Comprehensive Test-Ban Treaty, the nuclear-weapon States should exercise utmost restraint;” must be viewed in a different light. It clearly is bound to a broader interpretive context in which a CTBT is envisioned as a meaningful step along the road to nuclear disarmament, rather than an instrument for the permanent preservation of a two-tier world, in which a few states claim the right not only to possess unlimited weapons of mass destruction, but to destroy any state that dares to develop such weapons themselves.

Before nuclear arms racing can be reversed, it must be stopped. Real progress towards disarmament requires concrete steps by the nuclear weapons states to first control and then eliminate nuclear weapons research, development, and testing in all its forms. The United States, with nuclear weapons research programs that dwarf all others and with a stated policy of researching new kinds of nuclear weapons, bears the greatest responsibility

|                       |                     |
|-----------------------|---------------------|
| Piranha 1966          | Satz 1978           |
| Pisonia 1958          | Saxon 1966          |
| Piton-A 1970          | Sazerac 1967        |
| Piton-B 1970          | Scaevola 1958       |
| Piton-C 1970          | Scantling 1977      |
| Plaid II 1966         | Scaup 1965          |
| Planer 1969           | Schellbourne 1988   |
| Platte 1962           | Schooner 1968       |
| Platypus 1962         | Scissors 1968       |
| ✧Piano 2003           | Scotch 1967         |
| Player 1964           | Screamer 1965       |
| Pleasant 1963         | Scree-Acajou 1970   |
| Pliers 1969           | Scree-Alhambra 1970 |
| Plomo 1974            | Scree-Chamois 1970  |
| Pod-A 1969            | Scroll 1968         |
| Pod-B 1969            | Scupper 1977        |
| Pod-C 1969            | Scuttle 1969        |
| Pod-D 1969            | Seafoam 1973        |
| Polka 1967            | Seamount 1977       |
| Polygonum 1973        | Seaweed-B 1969      |
| Pommard 1968          | Seaweed-C 1969      |
| Pongee 1965           | Seaweed-D 1969      |
| Ponil 1985            | Seaweed-E 1969      |
| Pool 1976             | Seco 1981           |
| Poplar 1958           | Sedan 1962          |
| Portmanteau 1974      | Seersucker 1965     |
| Portola 1975          | Seminole 1956       |
| Portola-Larkin 1975   | Sepia 1965          |
| Potrero 1974          | Sesquial 1958       |
| Portulaca 1973        | Serena 1985         |
| Post 1955             | Serpa 1980          |
| Potrillo 1973         | Sevilla 1968        |
| Pratt 1974            | Seyval 1982         |
| Presidio 1987         | Shallows 1976       |
| Priscilla 1957        | Shaper 1970         |
| Project 56 No. 1 1955 | Shasta 1957         |
| Project 56 No. 2 1955 | Shave 1969          |
| Project 56 No. 3 1955 | Sheepshead 1979     |
| Project 56 No. 4 1956 | Shoal 1963          |
| Project 57 No. 1 1957 | Shrew 1961          |
| Puce 1966             | Shuffle 1968        |
| Puddle 1974           | Shidecar 1966       |
| Purple 1966           | Sienna 1966         |
| Purse 1969            | Silene 1973         |
| Puye 1974             | Simms 1966          |
| Pyramid 1980          | Simon 1953          |
| Quargel 1978          | Sled 1968           |
| Quay 1958             | Small Boy 1962      |
| Queso 1982            | Smoky 1957          |
| Questa 1962           | Snubber 1970        |
| Quince 1958           | Socorro 1958        |
| Quinella 1979         | Solano 1972         |
| Raccoon 1962          | Solanum 1972        |
| Rack 1968             | Solendon 1964       |
| Rainier 1957          | Spar 1973           |
| Randsburg 1990        | Spider-A 1969       |
| Raritan 1962          | Spider-B 1969       |
| Ray 1953              | Spoon 1964          |
| Reblochon 1978        | Sprid 1976          |
| ✧Rebound 1997         | Spud 1968           |
| Red Hot 1966          | St.Lawrence 1962    |
| Redmud 1976           | Staccato 1968       |
| Redwood 1958          | ✧Stagecoach 1998    |
| Reo 1966              | Stanley 1967        |
| Rex 1966              | Stanyan 1974        |
| Rhyolite 1988         | Starfish Prime 1962 |
| Rib 1977              | Starwort 1973       |
| Rickey 1968           | Starling 1966       |
| Rinconada 1962        | Stillwater 1962     |
| Ringtail 1961         | Stilt 1967          |
| Rio Arriba 1958       | Stilton 1975        |
| Rio Blanco-1 1973     | Stinger 1968        |
| Rio Blanco-2 1973     | Stoat 1962          |
| Rio Blanco-3 1973     | Stoddard 1968       |
| Riola 1980            | Stokes 1957         |
| Rivet I 1967          | Stones 1963         |
| Rivet II 1967         | Strait 1976         |
| Rivet III 1967        | Strake 1977         |
| Rivoli 1976           | Sturgeon 1964       |
| Roanoke 1962          | Stutz 1966          |
| ✧Rocco 2002           | Suede 1965          |
| Romano 1983           | Sugar 1951          |
| Romeo 1954            | Sulky 1964          |
| Roquefort 1985        | Sundown-A 1990      |
| Rose 1958             | Sundown-B 1990      |
| Rousanne 1981         | Sunset 1962         |
| Rovena 1966           | Sutter 1976         |
| Rudder 1976           | Swanee 1962         |
| Rulison 1969          | Switch 1967         |
| Rummy 1978            | Swordfish 1962      |
| Rushmore 1958         | Sycamore 1958       |
| Russet 1968           | Tafi 1980           |
| Ruth 1953             | Tahoka 1987         |
| Sabado 1983           | Tajique 1972        |
| Sacramento 1962       | Tajo 1986           |
| Salmon 1964           | Tamalpais 1958      |
| Salut 1985            | Tan 1966            |
| San Juan 1958         | Tanana 1962         |
| Sandreef 1977         | Tangerine 1966      |
| Sanford 1958          | Tanya 1968          |
| Santa Fe 1958         | Tapestry 1966       |
| Santee 1962           | Tapper 1969         |
| Sapello 1974          | Tarko 1980          |
| Sappho 1972           | Taunton 1962        |
| Sardine 1963          | Teclado 1983        |
| Satsop 1963           | Teak 1958           |
| Saturn 1957           |                     |

Tee 1965  
 Tejon 1963  
 Teleme 1975  
 Temescal 1974  
 Templar 1966  
 Tenabo 1990  
 Tenaja 1982  
 Tendrac 1962  
 Tern 1965  
 Terrine-White 1969  
 Terrine-Yellow 1969  
 Tesla 1955  
 Tewa 1956  
 Texarkana 1989  
 Thistle 1969  
 ✕Thoroughbred 2000  
 Throw 1968  
 Ticking 1965  
 Tierra 1984  
 Tighrope 1962  
 Tijeras 1970  
 Tilci 1981  
 Tinderbox 1968  
 Tiny Tot 1965  
 Tioga 1962  
 Titania 1958  
 Tobacco 1958  
 Tomato 1966  
 Tomme/  
 Midnight Zephyr 1983  
 Topgallant 1975  
 Topmast 1978  
 Torch 1968  
 Tornero 1987  
 Tornillo 1963  
 Torrido 1969  
 Tortugas 1984  
 Towanda 1985  
 Toyah 1963  
 Transom 1978  
 Traveler 1966  
 Trebbiano 1981  
 Trinity 1945  
 Trogon 1964  
 Truchas-Chacon 1970  
 Truchas-Chamisal 1970  
 Truchas-Rodarte 1970  
 Truckee 1962  
 Trumbull 1974  
 Tub-A 1968  
 Tub-B 1968  
 Tub-C 1968  
 Tub-D 1968  
 Tub-F 1968  
 Tulia 1989  
 Tuloso 1972  
 Tun-A 1969  
 Tun-B 1969  
 Tun-C 1969  
 Tun-D 1969  
 Tuna 1963  
 Turf 1964  
 Turk 1955  
 Turnstone 1964  
 Turquoise 1983  
 Tweed 1965  
 Tybo 1975  
 Tyg-A 1968  
 Tyg-B 1968  
 Tyg-C 1968  
 Tyg-D 1968  
 Tyg-E 1968  
 Tyg-F 1968  
 Umber 1967  
 Umbrella 1958  
 Uncle 1951  
 Union 1954  
 Uranus 1958  
 Valencia 1958  
 Valise 1969  
 Vat 1968  
 Vaughn 1985  
 Velarde 1973  
 Venus 1958  
 Verdello 1980  
 Vermejo 1984  
 Vesta 1958  
 Victoria 1992  
 Vide 1981  
 Vigil 1966  
 Villa 1985  
 Villita 1984  
 Vise 1969  
 Vito 1967  
 ✕Vito 2002  
 Vulcan 1966  
 Waco 1987  
 Wagtail 1965  
 Wahoo 1958  
 Waller 1973  
 Walnut 1958  
 Ward 1967  
 Washer 1967  
 Wasp 1955  
 Wasp Prime 1955  
 Welder 1968

here to take immediate, substantial, and unambiguous action. Because of their role not only in providing information useful for nuclear weapons design but in exercising capabilities needed to rapidly resume a full-scale nuclear explosive testing program, one logical starting place would be the termination of subcritical tests. Cessation of subcritical tests would both be a visible, concrete step towards controlling laboratory nuclear weapons research and would facilitate complete closure of all remaining underground nuclear test sites. In addition to simplifying verification issues, closure of the Nevada Test Site would further broaden the “firebreak” between simulation-based prototyping of some types of radically new nuclear weapons concepts and their deployment.

The elimination of nuclear weapons, still the gravest threat to humanity and growing once more as we enter a new century, will for a start require a clear commitment by the most powerful states, and the United States most of all, not only to nuclear disarmament but to a more peaceful world. The apparent determination of the most powerful countries to dominate the world by force of arms is eroding what remains of international order, and nuclear weapons are at the center of a growing global crisis of war and violence. The possibility that countries may obtain nuclear weapons is put forward as a principal rationale for a continuing U.S. high-tech and nuclear weapons buildup, and for preventive warfare without regard for the existing framework of international law. At the same time, the insistence by the existing nuclear weapons states, which also possess the most powerful conventional military forces, that nuclear weapons remain essential to their “security,” continues to undercut the fragile nonproliferation regime. As the International Court of Justice noted in its 1996 opinion on the *Legality of the Threat or Use of Nuclear Weapons*,

In the long run, international law, and with it the stability of the international order which it is intended to govern, are bound to suffer from the continuing difference of views with regard to the legal status of weapons as deadly as nuclear weapons.<sup>41</sup>

Nuclear weapons, and the brutal ultimate power politics that their possession simultaneously makes possible and, to those in their thrall, seem to make necessary, themselves continue to escape all efforts at their legal regulation, and in the end render efforts to regulate lesser uses of force largely futile as well. And as the World Court then concluded,

It is consequently important to put an end to this state of affairs: the long-promised complete nuclear disarmament appears to be the most appropriate means of achieving that result.<sup>42</sup>

In today’s mainstream U.S. political discourse, the daily grist of pundits, “electable” candidates, and “reasonable” experts, we hear barely a whisper about disarmament and the path to a more peaceful world for everyone, only endless debate over which new American weapons system can best destroy the weapons of others. Humanity will not survive many more decades of nuclear weapons and endless high-tech arms racing. It is long past time for us to take up the demand, made at the dawn of the nuclear age, “no longer a prayer, but an order which must rise up from people to their governments—the order to choose finally between hell and reason.”<sup>43</sup>

|                  |                |                     |                 |               |
|------------------|----------------|---------------------|-----------------|---------------|
| Wembley 1968     | Wichita 1962   | Wool 1965           | Yard 1967       | Yukon 1962    |
| Wexford 1984     | Wigwam 1955    | Worth 1967          | Yellowwood 1958 | Yuma 1956     |
| Wheeler 1957     | Wilson 1957    | Wrangell 1958       | Yerba 1971      | Zaza 1967     |
| White 1962       | Winch 1969     | X-ray 1948          | Yeso 1962       | Zebra 1948    |
| Whiteface-A 1989 | Wineskin 1969  | Yankee 1954         | Yoke 1948       | Zinnia 1972   |
| Whiteface-B 1989 | Wishbone 1965  | Yannigan-Blue 1970  | York 1962       | Zucchini 1955 |
| Whitney 1957     | Wolverine 1962 | Yannigan-Red 1970   | Yuba 1963       | Zuni 1956     |
|                  |                | Yannigan-White 1970 | Yucca 1958      |               |

*Information Bulletin for Western States Legal Foundation and Nevada Desert Experience by Andrew M. Lichterman*

**Notes**

1. Some tests involved multiple nuclear blasts; the total number of underground nuclear detonations at the Nevada Test Site was 828, counted as 804 “tests.” See generally U.S. Department of Energy, “United States Nuclear Tests July 1945 through September 1992,” DOE/NV--209-REV 15
2. U.S. Department of Energy, “Atmospheric Tests at the Nevada Test Site, 1951 - 1962,” March 2000, DOE/NV-716, March 2001, p.2.
3. For a collection of materials on the health effects of U.S. nuclear weapons testing, including government studies and critical commentary, see the Alliance for Nuclear Accountability “Health Issues” page at <http://www.ananuclear.org/healthpage.html>
4. Subcritical tests also can be conducted aboveground, contained in steel vessels. See Greg Mello and Andrew Lichterman, “Nuclear Testing in Tanks: Subcritical Nuclear Tests Resume at Los Alamos,” Los Alamos Study Group. June, 1999, [http://www.lasg.org/updatej99\\_b.html](http://www.lasg.org/updatej99_b.html)
5. U.S. Department of Energy, National Nuclear Security Administration, *Fiscal Year 2001 Stockpile Stewardship Plan*, 2000, obtained by the Western States Legal Foundation via the Freedom of Information Act, p. 31-2.
6. See Suzanne L. Jones and Frank N. Von Hippel, “Transparency Measures for Subcritical Experiments Under the CTBT,” *Science and Global Security*, 1997, Vol.6, p.291, 292-3.
7. Statement of Dr. Frederick A. Tarantino, President and General Manager, Bechtel Nevada, before the House Armed Services Committee, Procurement Subcommittee, June 12, 2002.
8. John A. Gordon, Administrator of the National Nuclear Security Administration (NNSA), Written Statement to the Committee on Armed Services, U.S. Senate, February 14, 2002.
9. U.S. Department of Defense, “Nuclear Posture Review Report: Forward,” January 8, 2002, <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm>
10. See generally U.S. Department of Energy, Secretary of Energy Advisory Board, *Report of the Nuclear Weapons Complex Infrastructure Task Force: Recommendations for the Nuclear Weapons Complex of the Future*, Draft Final Report, July 13, 2005
11. See generally U.S. Department of Energy, *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (1996), Volume 1, Appendix A, “Description of Projects and Activities, and National Nuclear Security Administration, Infrastructure Plan for the NNSA Nuclear Weapons Complex, April, 2003, p.19.
12. U.S. Department of Energy, Secretary of Energy Advisory Board, *Report of the Nuclear Weapons Complex Infrastructure Task Force: Recommendations for the Nuclear Weapons Complex of the Future*, Draft Final Report, July 13, 2005, pp.viii, 24.
13. U.S. Department of Energy, National Nuclear Security Administration, “Record of Decision for the Final Environmental Impact Statement for the Relocation of Technical Area 18 Capabilities and Materials at the Los Alamos

National Laboratory ,” 67 Federal Register no. 251, December 31, 2002, pp. 79906-79911.

14. U.S. Department of Energy, National Nuclear Security Administration, “Requirements for a Modern Pit Facility: Summary,” Report to Congressional Defense Committees Requested by the United States Congress in Public Law 108-375, Ronald W. Reagan National Defense Authorization Act, January 2005, p.4.

15. See Natural Resources Defense Council, “Table of Global Nuclear Weapons Stockpiles, 1945-2002,” Table of Global Nuclear Weapons Stockpiles, 1945-2002

16. Chris Jones, “The Business of Defense: All New Site Lines,” Las Vegas Review-Journal (web edition), October 26, 2003.

17. U.S. Department of Energy, *Final Environmental Impact Statement for the Nevada Test Site and Off-Site Locations in the State of Nevada* (1996), Volume 1, Appendices A-F, p.A-46.

18. See GlobalSecurity.org, “Nevada Test Site: BACHUS, Biotechnology Activity Characterization by Unconventional Signatures,” <http://www.globalsecurity.org/wmd/facility/nts-camp-12.htm>

19. See Henry Goldwire, Jr., “Remote Sensor Test Range: Proving Ground for Tomorrow’s Sensor Technologies,” *Science and Technology Review* (Lawrence Livermore National Laboratory), April 2000.

20. NPS/CIRPAS Activity Summary, CADDIE Demonstration, <http://web.nps.navy.mil/~cirpas/Projects/CADDIE%20Activity%20Summary.htm>

21. U.S. Department of Defense, Defense Threat Reduction Agency, “Thermobaric Warheads,” [http://www.dtra.mil/td/thermo/td\\_thermo.html](http://www.dtra.mil/td/thermo/td_thermo.html)

22. U.S. Department of Defense, Deputy Under Secretary of Defense (Science and Technology), Defense Technology Area Plan, (2000), p.XI-9, obtained by Western States Legal Foundation under the Freedom of Information Act. Full document available at <http://www.wslfweb.org/docs/dstp2000/dtappdf/contents.pdf>

23. Preamble, *Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water* (1963) Entered into Force: 10 Oct 1963.

24. U.S. Department of Defense, Deputy Under Secretary of Defense (Science and Technology), *Defense Technology Area Plan*, (2000), p.XI-7, obtained by Western States Legal Foundation under the Freedom of Information Act. Full document available at <http://www.wslfweb.org/docs/dstp2000/dtappdf/contents.pdf>

25. For more information on the B61-11 and other research on nuclear weapons with new capabilities during the 1990's, see Greg Mello, “New bomb, No Mission,” *The Bulletin of Atomic Scientists*, May/June 1997, and Andrew Lichterman, *Looking for New Ways to Use Nuclear Weapons: U.S. Counterproliferation Programs, Weapons Effects Research, and “Mini-Nuke” Development*, Western States Legal Foundation Information Bulletin, Winter 2001, <http://www.wslfweb.org/docs/mininuke.pdf>.

26. U.S. Department of Defense, Deputy Under Secretary of Defense (Science and Technology), *Defense Technology Objectives for Defense Technology Area Plan*, (2000), “Nuclear Phenomenology,” p. II-372, obtained by Western States Legal Foundation under the Freedom of Information Act . (Emphasis added) The full document can be found on the WSLF web site at <http://www.wslfweb.org/docs/dstp2000/dtopdf/24-NT.pdf>

27. Nuclear Posture Review, pp. 34-35, provided in “Nuclear Posture Review Excerpts,” Globalsecurity.org, at <http://www.globalsecurity.org/wmd/library/policy/dod/npr.htm> (hereafter *Nuclear Posture Review*). For a more detailed analysis of the Nuclear Posture Review and current U.S. nuclear weapons policies and their relationship to other high-tech weapons programs, see Andrew Lichterman and Jacqueline Cabasso, *The Shape of Things to Come: The Nuclear Posture Review, Missile Defense, and the Dangers of a New Arms Race*, WSLF Special Report, April 2002, <http://www.wslfweb.org/docs/shape.pdf> For additional information from a variety of sources about the Nuclear Posture Review, see the WSLF NPR information page at <http://www.wslfweb.org/nukes/npr.htm>

28. U.S. Department of Energy FY2003 Congressional Budget Request, National Nuclear Security Administration, Weapons Activities, Executive Summary p.10 (pdf file pagination); see also Jonathan Medalia, “Bunker Busters”: Robust Nuclear Earth Penetrator Issues, FY2005 and FY2006, Congressional Research Service Report for Congress, RL32347, Updated June 23, 2005.
29. “Stockpile Stewardship Conference Planning Meeting Minutes,” 10 January 2003, Attachment 2, “Panels: Draft Topics Lists and Members.” Obtained by the Los Alamos Study Group, [www.lasg.org](http://www.lasg.org), full document available at <http://www.lasg.org/StockpileStewardshipReview%5b1%5d.htm>
30. For an overview of these missile programs, see *Missiles of Empire: America’s 21<sup>st</sup> Century Global Legions*, Western States Legal Foundation (WSLF) Information Bulletin, Fall 2003 <http://www.wslfweb.org/docs/missiles03.pdf>; and WSLF Special Report, *War is Peace, Arms Racing is Disarmament: The Non-Proliferation Treaty and the U.S. Quest for Global Military Dominance*, May 2005, <http://www.wslfweb.org/docs/warispeace.pdf>
31. U.S. Department of Energy, National Nuclear Security Administration, FY 2006 Budget Request, “Directed Stockpile Work,” pp.82-83. Regarding the hypothetical use of a penetrator version of a B83 or B61 nuclear bomb with primary yield only, see Christopher E. Paine, Thomas B. Cochran, Matthew G. McKinzie, and Robert S. Norris, *Countering Proliferation, or Compounding It? The Bush Administration’s Quest for Earth- Penetrating and Low-Yield Nuclear Weapons*, Natural Resources Defense Council, 2003, p.v. The Defense Science Board (DSB) noted that “Current warheads could be modified for lower yields with high confidence,” and noted that one way of doing so would be “replacement of a warhead secondary with inert material.” The DSB noted that “Further reductions in yield are also possible without nuclear testing.” *Report of the Defense Science Board Task Force on Future Strategic Strike Forces*, 2004, p. 7-11.
32. Department of the Air Force, Fiscal Year (FY) 2006/2007 Budget Estimates, Research, Development, Test and Evaluation (RDT&E), Descriptive Summaries, Volume II, Program Element 0604222F, Nuclear Weapons Support, Project 4807 Nuclear Weapons & CP Technologies, “Other program funding summary.”
33. U.S. Department of Energy, National Nuclear Security Administration, FY 2006 Budget Request, Directed Stockpile Work, “Reliable Replacement Warhead,” p.82; Statement of Ambassador Linton F. Brooks, Administrator, National Nuclear Security Administration U.S. Department of Energy, before The Senate Armed Services Committee Subcommittee on Strategic Forces, April 4, 2005, pp.5-6; Dwight Jaeger and John Pedicini, “The Evolving Deterrent,” *Los Alamos Science*, Number 29, 2005, p.4, see also generally U.S. Department of Energy, Secretary of Energy Advisory Board, *Report of the Nuclear Weapons Complex Infrastructure Task Force: Recommendations for the Nuclear Weapons Complex of the Future*, Draft Final Report, July 13, 2005.
34. 1995 Review and Extension Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Principles and Objectives for Nuclear Non-Proliferation and Disarmament*, NPT/CONF,1995/L.5, 9 May 1995.
35. Secretary of State Madeleine K. Albright, Remarks at Chicago Council on Foreign Relations, November 10, 1999, Chicago, Illinois, as released by the Office of the Spokesman, U.S. Department of State. Emphasis added.
36. 2000 Review Conference of the Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, *Final Document*, NPT/CONF.2000/28, 22 May 2000.
37. National Nuclear Security Administration, *Infrastructure Plan for the NNSA Nuclear Weapons Complex*, April, 2003, p.8.
38. In 1978, long before the sophisticated new weapons testing facilities now being built by the United States were contemplated, three prominent U.S. nuclear weapons scientists, Norris Bradbury, Carson Mark, and Richard Garwin, wrote to President Jimmy Carter informing him that it would be possible to assure the safety and reliability of nuclear warheads without underground nuclear testing, so long as warhead designs were not significantly changed. They noted that

...[T]he assurance of continued operability of stockpiled nuclear weapons has in the past been achieved almost exclusively by non-nuclear testing-- by meticulous inspection and disassembly of the components of the nuclear weapons, including their firing and fusing equipment. Problems encountered in this inspection are normally

validated by additional sampling and solved by the remanufacture of the affected components. This program is, of course, supplemented by the instrumented firing of the entire nuclear weapon with inert material replacing the fissile materials, and the entire program thus far described would be unaffected by the requirements of a CTBT. It has been exceedingly rare for a weapon to be taken from the stockpile and fired ‘for assurance.’

*It has been rare to the point of non-existence for a problem revealed by the sampling and inspection program to require a nuclear test for its resolution.* There are three acceptable approaches to the correction of deficiencies without requiring nuclear testing:

- 1) Remanufacture to precisely the original specifications
- 2) Remanufacture with minor modifications in surface treatment, protective coatings, and the like, after thorough review by experienced and knowledgeable individuals.
- 3) Replace the nuclear explosive by one which has previously been tested and accepted for the stockpile.

A fourth option, to replace the troubled nuclear system by one not already proof tested may result in improved performance, lesser use of special nuclear materials, or the like, *virtues which have more to do with improvement of the stockpile than with confirming its operability....*” Letter, N. Bradbury, C. Mark, and R. Garwin, to President Jimmy Carter, August 15, 1978, Appendix J to R.E. Kidder, “Maintaining the U.S. Stockpile of Nuclear Weapons During a Low-Threshold or Comprehensive Test Ban,” Lawrence Livermore National Laboratory 1987. (Emphasis added)

39. As Sandia National Laboratory Director C. Paul Robinson noted in his testimony to the Senate Armed Services Committee on the CTBT, while the national laboratories “cannot create completely new concepts without testing, many previously tested designs could be weaponized to provide new military capabilities.” Robinson observed that

“Proven designs of lower yield exist that might be adaptable for new military requirements in the future. I believe that such weapons could be deployed this way without the need for nuclear tests. Statement of C. Paul Robinson to the U.S. Senate Armed Services Committee, October 7, 1999.

The Defense Science Board, in its 2004 *Report of the Defense Science Board Task Force on Future Strategic Strike Forces*, also noted that a variety of additional capabilities likely could be obtained by modifying existing nuclear warhead designs without underground testing, ranging from reduced yields and improved earth penetrating ability to enhanced radiation with reduced heat and blast. (At pp.7-10-7-11).

40. Comprehensive Nuclear-Test-Ban Treaty, Opened for signature at New York: 24 September 1996, Not yet in force, Depositary: Secretary-General of the United Nations.

41. Legality of the Threat or Use of Nuclear Weapons (General List No. 95 (Advisory Opinion of 8 July 1996)) Para. 98.

42. *Id.*

43. Albert Camus, “Between Hell and Reason,” *Combat*, August 6, 1945, in Kai Bird and Lawrence Lifschultz, eds., *Hiroshima’s Shadow: Writings on the Denial of History and the Smithsonian Controversy*, (Stony Creek, Connecticut: 1998), 261.

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# Complex Transformation

## *The New Nuclear Weapons Complex*

The Bush administration has a multi-billion dollar plan to rebuild the nation's nuclear weapons production capabilities. The plan includes updating and constructing new bomb-making facilities that would mass-produce nuclear weapons for the first time in two decades. This new plan, called "Complex Transformation," formerly Complex 2030, is a reversal of the goals of the nuclear Non-Proliferation Treaty (NPT).

The underlying premise of international efforts to stop the spread of weapons of mass destruction is that the United States and other nuclear weapons states would also work toward disarmament.

Building the next generation of nuclear weapons factories takes the United States in the opposite direction. The new plan also threatens U.S. and international security by undermining calls for Iran and North Korea to halt their nuclear programs.

### What is the Nuclear Weapons Complex?

The Nuclear Weapons Complex is a network of facilities that develop and maintain the U.S. nuclear weapons arsenal. The Energy Department (DOE) is the federal agency that administers the Complex.

These facilities are scattered across the country at eight major sites with missions as diverse as laboratory work to explosives testing to weapon component manufacturing. DOE employees working in the Complex range from factory workers to nuclear physicists. Currently, the Nuclear Weapons Complex costs taxpayers over \$6 billion per year.



A nuclear test explosion at the Nevada Test Site in 1953  
Photo from the U.S. government

### What is Complex Transformation?

Complex Transformation is the administration's plan to restructure and rebuild the Nuclear Weapons Complex. A key element of the plan is the updating and construction of new nuclear weapons production facilities. In addition, Complex Transformation would consolidate weapons-grade nuclear materials into fewer locations and reduce the Complex footprint.

The major planned new nuclear weapons support facility, the Chemistry and Metallurgy Research Replacement plant (CMRR), would enable the annual capacity to build 80 plutonium pits, or "triggers," for new nuclear warheads. This would sharply increase U.S. capacity to produce new nuclear weapons, a capacity the United States has not had since the closure of the Rocky Flats Plant outside Boulder, Colorado, in 1989. The CMRR facility would be built at the Los Alamos National Laboratory, located northwest of Santa Fe, New Mexico. The Energy Department estimates that the CMRR would cost taxpayers over \$2 billion.



## Complex Transformation Undermines Security

The international community has worked for decades to construct the nuclear nonproliferation regime that has helped prevent the spread of nuclear weapons. The Complex Transformation proposal undermines these agreements that were created to reduce the nuclear danger. At a time when the U.S. government is demanding other countries adhere to the nuclear Non-Proliferation Treaty (NPT) and renounce nuclear weapons, the U.S. government is not meeting its own obligation to pursue disarmament.

In signing the NPT, the United States committed to working toward the goal of nuclear disarmament under Article VI of the treaty. Complex Transformation violates the spirit of this disarmament section because it would enable the United States to build new nuclear weapons.

While the U.S. government is pressing Iran and North Korea to abandon their nuclear programs, it is planning to buttress its own nuclear arsenal. This is an untenable and morally wrong policy of “do as I say, and not as I do.” Indeed, as Rep. Ed Markey (MA) has warned, “America cannot preach nuclear temperance from a barstool.”

### Where Are We Now and What Can I Do?

The administration is seeking funds for Complex Transformation in its fiscal year 2009 (FY09) budget request. Specifically, the Energy Department (DOE) requested \$100 million for the new nuclear bomb support facility, the Chemistry and Metallurgy Research Replacement facility (CMRR). The complete cost of CMRR is estimated to be greater than \$2 billion.

The public has played a central role in curbing the nuclear arms race. In 2007, people across the United States mobilized against the Reliable Replacement Warhead and a proposed mega-scale bomb plant. Arms control advocates celebrated a major victory when Congress denied money for both programs. A similar movement is needed again. Here is what you can do:

- Express your views on new nuclear weapons directly to the federal government. The Energy Department is required to consider your recommendations on

Complex Transformation and the proposed CMRR bomb support facility by holding public hearings and accepting public comments through April 30, 2008. You can submit comments directly by email to the DOE at [ComplexTransformation@nnsa.doe.gov](mailto:ComplexTransformation@nnsa.doe.gov). For more information, visit [www.fcnl.org/nuclear](http://www.fcnl.org/nuclear)

- Urge your members of Congress to oppose new nuclear weapons by any name. Ask them to eliminate funding for the new bomb support facility, the Chemistry and Metallurgy Research Replacement facility, in the federal budget. Members of the House and Senate Armed Services Committees, and the House and Senate Appropriations Committees will play a key role in deciding the future of this bomb plant. If your representative or senators sit on these committees, it is particularly important that they know of your concerns about Complex Transformation and the new bomb-making facilities.
- Write a letter to the editor of your local paper explaining the dangers of rebuilding the Nuclear Weapons Complex and producing new nuclear weapons.
- Educate your friends and family. Numbers do make a difference, and legislators will be more inclined to vote your way if they feel that a groundswell of support exists for a particular measure or issue. Help create that momentum by educating your community.

### Let FCNL Help You Take Action to Stop Complex Transformation

FCNL has many resources to assist you. Visit FCNL's web site at [www.fcnl.org/nuclear](http://www.fcnl.org/nuclear) to help you write a letter, review background information, and track congressional action. The website includes information on new weapons development, nonproliferation initiatives, nuclear weapons use policy, and weapons testing.

April 2008





# Reliable Replacement Warhead

## *Another Unneeded Nuclear Weapon*

### Reliable Replacement Warhead: Another Unneeded Nuclear Weapon

Stymied by Congress' refusal to fund the nuclear "bunker buster," the Bush administration remains intent on developing another class of new nuclear weapons, the so-called Reliable Replacement Warhead, or RRW.

The administration has asked for \$119 million for fiscal year 2008 to enable the Energy Department in conjunction with the Defense Department to design and develop a program to replace current nuclear warheads. Arms control advocates and some members of Congress are concerned that the program is a Trojan horse that could lead to the resumption of nuclear testing.

Researching and developing a new generation of "reliable" nuclear weapons could undermine arms control and nonproliferation objectives by setting off a nuclear arms race. It sends the wrong message to other would-be nuclear powers around the world. It could prompt Russia and China to modernize their nuclear arsenals. The program could also lead to the resumption of U.S. nuclear testing and end the current international testing moratorium.

**Sea-launched ballistic missile**  
Photo from U.S. Department of Navy



Despite the "reliable" label of the proposed new program, the current U.S. arsenal is extremely reliable. The secretaries of Energy and Defense have certified to the president for the past 11 years that the present U.S. nuclear stockpile is safe, secure—and reliable.

The keystone of the Energy Department's argument for RRW has been the aging of plutonium pits, an essential element of new nuclear weapons. Department officials had estimated that some pits in existing weapons would become "unreliable" in less than a decade and needed to be replaced. Yet, a congressionally mandated report by a scientific panel found that pits will remain "reliable" for more than twice the time originally estimated, with most pits having lifetimes of over 100 years.

The program would require new nuclear weapons plants that the Energy Department estimates will cost tens of billions of dollars. As a former White House budget official in the first Bush and Clinton administrations stated, "The weapons labs are more interested in job security than national security."<sup>1</sup>

Congressional leaders believe they can keep the RRW program within tight constraints, but the history of previous limits on the nuclear weapons program is not promising.

### RRW and the Nuclear Non-Proliferation Treaty

Developing new nuclear weapons is at odds with the U.S. commitment to prevent the spread of nuclear weapons. It undermines the nuclear Non-Proliferation Treaty (NPT), an international agreement signed by 188 countries that has significantly limited the number of states that have nuclear weapons.

<sup>1</sup>Robert Civiak, "Rumblings over the Bomb: Slippery Slope to New Nukes," *San Francisco Chronicle*, January 24, 2006.

In 1970 as part of the NPT, the United States agreed “to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament” (Article VI). As the Vatican remarked at the United Nations in 2005, “In essence, the NPT promised a world in which nuclear weapons would be eliminated...” However, “it is evident that nuclear deterrence drives the development of ever newer nuclear arms, thus preventing genuine nuclear disarmament.”<sup>2</sup>

The administration claims that new nuclear weapons are needed for some future “new threat.” However, such U.S. weapons programs make it easier for nuclear “hawks” in Moscow and Beijing to argue for new nuclear weapons for their own nuclear arsenals, undermining the process of disarmament.

Developing new nuclear weapons also undermines U.S. nonproliferation goals. As Rep. Ed Markey (MA), a leading congressional critic of new nuclear weapons, has stated, “America cannot credibly preach nuclear temperance from a barstool.” At a time when the United States is urging restraint in Iran and North Korea’s nuclear programs, the U.S. administration is intent on developing its own new nuclear weapons against an undefined, future threat.

Rather than building new nuclear weapons, it is time to honor the NPT and work towards, in the words of President Reagan, the elimination of “all nuclear weapons.” As former Secretary of State Henry Kissinger and other senior statesmen recently affirmed, “Reassertion of the vision of a world free of nuclear weapons and practical measures toward achieving that goal would be, and would be perceived as, a bold initiative consistent with America’s moral heritage.”<sup>3</sup>

<sup>2</sup>Archbishop Celestino Migliore, Statement to the Review Conference on the Non-Proliferation of Nuclear Weapons, United Nations, May 4, 2005.

<sup>3</sup>George Shultz, William Perry, Henry A. Kissinger, Sam Nunn and others, A World Free of Nuclear Weapons, *The Wall Street Journal*, January 4, 2007; Page A15. Article can be found at [http://www.fcnl.org/issues/item.php?item\\_id=2252&cissue\\_id=2](http://www.fcnl.org/issues/item.php?item_id=2252&cissue_id=2).

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## Where Are We Now and What Can I Do?

The administration is seeking \$119 million for RRW in its fiscal year 2008 (FY08) budget request. The amount of money for the program will increase significantly in future years as funds are requested for engineering and construction.

Concerned citizens have played a central role in the past in curbing the nuclear arms race and preventing nuclear war. A similar movement is needed today. Here is what you can do:

- Communicate with your members of Congress. Urge them to eliminate funding for RRW in the FY08 budget. Funding could be included in three annual budget bills: the military authorization bill, military appropriations bill, and the energy and water appropriations bill. The members of the House and Senate Armed Services Committees, and the House and Senate Energy and Water Appropriations Subcommittees will play a key role in decisions on the future of RRW. If your representative or senators sit on these committees, it is particularly important that they know of your concerns about RRW.
- Write a letter to the editor of your local paper explaining the dangers of producing new nuclear weapons.
- Educate your friends and family. Numbers do make a difference, and legislators will be more inclined to vote your way if they feel that a groundswell of support exists for a particular measure or issue. Help create that momentum by educating your community.

### Let FCNL help you take action to stop RRW

FCNL has many resources to assist you. If you do not have web access, we can mail written material to you.

Visit FCNL’s website at [www.fcnl.org](http://www.fcnl.org) to view congressional actions, background information, advocate letters and statements, and links to other resources. The web site includes information on topics such as new weapons development, nonproliferation initiatives, nuclear weapons use policy, and weapons testing. Documents on RRW can also be found at [StoptheBombPlant.org](http://www.stopthebombplant.org). If you do not have web access, we can mail written material to you.



## **“DRONE WARRIORS”: ANOTHER THRESHOLD CROSSED**

by Fr. Louis Vitale, OFM, co-founder of Nevada Desert Experience  
(from the December, 2008 *Desert Voices*)

Journalist Keith Rogers, in a recent article in the “Las Vegas Review Journal”, quotes Colonel Christopher Chambliss, commander of the U.S.’s 432<sup>nd</sup> Wing, in exclaiming the new MQ3 Reaper, big brother to the MQ1 Predator, the latest in the U.S. fleet of “Unmanned Airborne Vehicles.” The colonel reflects on the time nine decades ago when military leaders were beginning to grasp the value of piloted aircraft that led the U.S. to domination of airspace and ultimately the intimidation of the world through the dropping of two atomic bombs on Japan.

Jonathan Schell’s latest book *The Seventh Decade* updates us on where we have come with the “atomic bomb” since that time. We have become the “Superpower” who holds the world in check through global domination with the fear of nuclear annihilation through our 12,000+ nuclear weapons available from air, land sites and sea. Noted psychiatrist and author Dr. Robert Jay Lifton has further illustrated the debilitation of the one dropping the bombs. He speaks to a severe “numbing” of the psyche that happens through the size of the weapons and the distance from the victims on the ground.

The new drones that are flown from Creech Air Force Base near Las Vegas (in the fashion of a video arcade) 7,000 miles from the target extend the numbing even farther. Here young enlisted men in the Air Force sitting side by side with more experienced pilots guide missiles to their targets as in a video arcade. But these are real missiles and with the “Reaper” even carrying 500 pound bombs. Our daily newspapers and TV broadcasts show us the impact on “family compounds,” schools, and hospitals. These bring the fleeting sense of dropping a bomb from 35,000 feet to an immediate sight of bodies in plain view. Commanders report on the impact on some of the crews, especially the sensors who handle the cameras and guide the missiles to their targets with their laser beams. The commander spoke of the difficulty of some of the younger crew members as they went home to their families after the days bomb runs and the need now to hire more chaplains and psychologists for their aid.

Long time observers of the impact of the Afghanistan/Iraq war, such as humanitarian/activist Kathy Kelly, who have experienced first hand the enormous sufferings of the 2,000,000+ victims are eager to travel to Waziristan and other frontiers between Afghanistan and Pakistan to see up close what the Predator and Reaper crews see on their screens (shown lately to BBC viewers world wide as they dramatized a British Reaper crew--our coalition partners-- to their viewers in the homeland.

Here in Nevada, with the Creech headquarters of the UAV 432<sup>nd</sup> Wing nearby, part of the same land space shared with the Nevada Test Site, the bombing range operated by Nellis Air Force Base, and other sites of new and lethal weapons, the scandal of Creech’s remote and earth-shattering war, we cannot dare fail to address the damage and destruction both on the Middle East battlefield and on its own crews.

With other Nevada partners we have begun vigils at the gate to the Drone base. We have carried out signs of concern, taken a letter to the base commander Colonel Chambliss and heard their ownership of “causing groans” and making “kills.” We pray and we weep. As with recent developments of torture, this is a frontier we did not want to pass. They intimidate the world and leave us all in fear and trembling.” We are pledged to call attention to the truth of these atrocities and take active measures to put an end to their existence.