Book Catalog An excerpt from Dark Sun

Prologue: Deliveries

THE WAR WAS OVER. The troops were coming home. Sick of mud and olive drab, of saltwater showers and sweltering holds, twelve million American soldiers and sailors counted their service points to see how soon they could ship out for Brooklyn and Ukiah and St. Joe. Tens of thousands of warplanes, ships, tanks, artillery pieces sat abandoned, the full industrial output of a prosperous nation, the work the women and the older men had done, soon to be junked. The Second World War had been the most destructive war in history, obliterating fifty-five million human lives. The German invasion of the Soviet Union and the obdurate Soviet response had accounted for more than half those deaths; with them, in Germany and the Soviet Union both, had followed general ruination. In the end, out in the Pacific, two planes carrying two bombs had compelled the war's termination. The two atomic bombs, ferocious as minor suns, had given an emperor descended from a god reason to surrender. The war was over. It was hard to imagine that there might ever be another.

Luis Alvarez, an American experimental physicist, a tall, ruddy Californian with ice-blond hair, had understood the message of the bomb on his way back from Hiroshima. Alvarez collected adventures. He liked to be on hand when history was made. After he invented ground-controlled approach radar he had flown a prototype unit to wartime England and personally tested it talking down British bombers returning through fog. At the secret laboratory at Los Alamos in New Mexico where the atomic bombs were designed and built by hand, he had arranged to observe intensely radioactive test explosions up close in a lead-lined tank. He had invented a new electric detonation system for the Fat Man plutonium implosion bomb that fired its multiple detonators with microsecond simultaneity. As the time to deploy the revolutionary new weapons approached, Alvarez had found a way to justify flying the historic first mission.

The Hiroshima bomb, Little Boy, was a uranium gun. It used sixty-four kilograms of rare uranium 235, all of that dense, purple-black metal the United States had been able to accumulate up to the end of july 1945. The uranium gun was an extremely conservative design. "We were confident it would work," Alvarez writes, but it had not been tested. To determine its efficiency, Los Alamos had needed to know its explosive yield. So Alvarez had invented a device for measuring that yield, a set of parachute-deployable pressure gauges to be dropped ahead of the bomb that would radio their readings to a backup plane. Riding in that backup plane, a B-29 named the Great Artiste, Alvarez had seen the bright flash of the Hiroshima explosion, had watched its pressure pulses register on the oscilloscopes mounted in the rear compartment he occupied, had felt the two sharp slaps of direct and ground-reflected shock waves slamming the plane like flak explosions, had moved to the window then and searched below· while the plane circled the rising mushroom cloud. "I looked in vain for the city that had been our target. The cloud seemed to be rising out of a wooded area devoid of population." On the intercom the pilot confirmed that the aiming had been excellent; Alvarez could not see the city because the city had been destroyed.

On the way back to Tinian, the island in the Marianas from which the atomic bombing had been staged, Alvarez had passed the time writing a letter to keep for his son Walter, then four years old. "This is the first grown- up letter I have ever written to you," the physicist began. He reminded his son that they had inspected a B-29 together in Albuquerque- "probably you will remember climbing thru the tunnel over the bomb bay," he teased him, "as that really impressed you at the time." Then Alvarez described "what has happened to aerial warfare" as a result of the Enola Gay's mission that

morning:

> Last week the 20th Air Force...put over the biggest bombing raid in history, with 6,000 tons of bombs (about 3,000 tons of high explosives). Today, the lead plane in our formation dropped a single bomb which probably exploded with the force of 15,000 tons of high explosive. That means that the days of large bombing raids, with several hundred planes, are finished. A single plane disguised as a friendly transport can now wipe out a city....
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> What regrets I have about being a party to killing and maiming thousands of Japanese civilians this morning are tempered with the hope that this terrible weapon we have created may bring the countries of the world together and prevent further wars. Alfred Nobel thought that his invention of high explosives would have that effect, by making wars too terrible, but unfortunately it had just the opposite reaction. Out new destructive force is so many thousands of times worse than it may realize Nobel's dreams.

A second atomic bomb exploded three days later over Nagasaki reinforced the point and on August 14, 1945, the Japanese had surrendered. After the surrender, Robert Serber, the theoretical physicist who had directed the design of the Little Boy bomb, a lean, gentle Philadelphian with a steel-trap mind, had walked the streets of the city his bomb had destroyed. With other scientists and physicians, Serber had been assigned to visit the two atomic- bombed cities to study the damage; from Tokyo his group had caught a ride down Honshu in the personal plane of Admiral Richard E. Byrd, the Antarctic explorer, who wanted to see the destruction at first hand. In Nagasaki and then Hiroshima, Serber and British hydrodynamicist William Penney had collected dented gas cans, concrete rubble, a charred crate, a beaverboard panel burned with the shadow of a window frame. They had talked to returning Australian and Dutch prisoners of war temporarily housed in Nagasaki, living skeletons whom the Japanese had brutally abused and starved. They had visited a Japanese civilian hospital and seen women and children ill with flash burns and radiation sickness, an experience Serber still characterized almost fifty years later as "really harrowing." It had been easy to leave the United States during wartime. Returning now that the war was over was more complicated. "We had a little trouble in San Francisco," Serber remembers. "Peacetime practices were now in effect. We had to go through Customs (squashed gas cans, hunks of concrete, charred crate) and Immigration and it turned out that Bill didn't have a passport. However, our other identifications so impressed the immigration official that he decided he could call Bill a British RAF [Royal Air Force] officer and let him in." To a nation weary of war, the scientists who built the atomic bombs were heroes.

Major General Curtis LeMay riddled a different oracle from the ashes of Hiroshima and Nagasaki. A swarthy, burly, taciturn thirty-eight-year-old Ohio-born engineer, LeMay commanded the B-29s that had firebombed Japan to destruction, lifting from the vast coral runways of Guam, Saipan and Tinian like the thousand silver throwing-stars of a warrior god. LeMay still remembered vividly--would remember all his life--how unprepared the United States had been at the beginning of the war. "We came into the war with practically nothing," he told an interviewer in 1943. To an audience of fellow Ohio State alumni later in 1945 he would insist starkly:

> We tottered on the brink of defeat for two years before we could strike back. I know the feeling of our men [besieged] on Bataan and Corregidor because I commanded a bomb group in England in the early days of the war where we found the same situation--50 bombers against the entire German air forces. There came a time when we could see that at the existing loss rate with no reinforcements the last B-17 would take off to bomb Germany within 30 days. Fortunately, that unhappy day never arrived because the first trickle of help came just in time. It is quite an experience to see the reaction on people who have reconciled themselves to dying, [who] suddenly finish their combat tour and look forward to living again. I hope no American ever has to go through that experience in the future.

In England, LeMay had led his bombardment group's first combat mission. He had invented defensive formations that saved crew lives and bombing techniques that put twice and three times as many bombs on target as less imaginative commanding officers arranged. His byword was preparation. "Hit it right the first time," he taught his men, "and we won't have to go back." They called him Iron Ass because he trained them relentlessly, but they also called him "absolutely the best CO in the Army." From England in 1944 he had moved to India to attempt the thankless task of bombing the Japanese from bases in China supplied by air from India over the Himalayas, the infamous Hump. The B-23, the first intercontinental bomber, was just then coming into production and the leaders of the Air Forces, still a

branch of the Army, needed to prove the value of the investment. LeMay's B-29s had to haul their own gasoline over the Hump; it took a half-dozen Hump flights with bomb bays tanked with fuel to support one combat mission over Japan. Japan's weather moved in through north China, which Mao Zedong's army controlled. LeMay traded the Communist guerrilla leader medical supplies for crew rescues and weather reports.

The four-engine B-29, half the size of a football held, with electric control systems and two capacious bomb bays, was supposed to be a high-altitude precision bombing machine, aiming bombs down chimneys with the famous Norden bombsight from thirty thousand feet. But the force assembling in the Marianas while LeMay's crews labored from China had the bad luck to discover the jet stream. From one mission to the next it blew the planes off their targets. The Norden bombsight had not been designed to compensate for such furious drift. Once, when the B-29s were supposed to be bombing an aircraft factory ten miles north of Tokyo, they discovered their bombs had exploded in Tokyo Bay; the Japanese joked that the Americans were trying to drown them. LeMay was called in to fix the problem early in 1945. While he worked on improving precision, he and his staff studied strike photos and flak reports. They realized the Japanese had no night fighters and noticed that Japanese anti-aircraft fire clustered high. "We couldn't find any low-altitude defense," LeMay concludes.

Daylight precision bombing from low altitude would put LeMay's crews at risk. Advanced radar bombsights were not yet available for precision bombing at night. The USAAF wanted to end the war with air power before an Army and Navy invasion of Japan. LeMay worked out a radical change in strategy, ordered his B-29s stripped of armament to increase their carrying capacity, had 325 planes loaded with ten thousand pounds each of jellied gasoline firebomb clusters and sent them over Tokyo on the night of March 10, 1945, staggered at from five to nine thousand feet, with pathfinder B-29s going ahead of them to mark out huge Xs in flame at their designated aiming points. LeMay's subsequent mission report emphasized that the object of the attack "was not to bomb indiscriminately civilian populations. The object was to destroy the industrial and strategic targets concentrated" in the Tokyo urban area. The firebombing successfully destroyed or damaged "twenty-two industrial target[s] .. . and many other unidentified industries." But the destruction that first windy night was in fact indiscriminate to the point of atrocity, as LeMay himself understood: 16.7 square miles of the Japanese capital burned to the ground, 100,000 people killed and hundreds of thousands injured in one night. "The physical destruction and loss of life at Tokyo," LeMay quotes from the official Air Force history of the Second World War, "exceeded that at Rome . . . or that of any of the great conflagrations of the western world--london, 1666...Moscow, 1812...Chicago, 1871 ... San Francisco, 1906....0nly Japan itself, with the earthquake and fire of 1923 at Tokyo and Yokohama, had suffered so terrible a disaster. No other air attack of the war, either in Japan or Europe, was so destructive of life and property." With such compelling evidence that the new bombing strategy worked, LeMay laid on firebombings night after night against city after Japanese city until his supply depots ran out of bombs; resupplied, he pursued the firebombing campaign relentlessly through the spring and summer of 1945 until the end of the war, by which time sixty-three Japanese cities had been totally or partially burned out and hundreds of thousands of Japanese civilians killed, at a total cost to the Air Forces, as LeMay would lecture later, of "485 B-29s" and "approximately 3,000 combat crew personnel." Hiroshima and Nagasaki survived to be atomic-bombed only because Washington had removed them from Curtis LeMay's target list.

Long after the war, a dauntless cadet asked LeMay "how much moral considerations affected his decisions regarding the bombing of Japan." LeMay, as hard a man as Ulysses S. Grant, answered with his usual bluntness:

> Killing Japanese didn't bother me very much at that time. It was getting the war over that bothered me. So I wasn't worried particularly about how many people we killed in getting the job done. I suppose if I had lost the war, I would have been tried as a war criminal. Fortunately, we were on the winning side. Incidentally, everybody bemoans the fact that we dropped the atomic bomb and killed a lot of people at Hiroshima and Nagasaki. That I guess is immoral; but nobody says anything about the incendiary attacks on every industrial city in Japan, and the first attack on Tokyo killed more people than the atomic bomb did. Apparently, that was I guess the direct answer to your question is, yes, every soldier thinks something of the moral aspects of what he is doing. But all war is immoral, and if you let. that bother you, you're not a good soldier.

At the Japanese surrender ceremonies on the battleship Missouri in Tokyo Bay on September 2, LeMay's B-29s, nearly five hundred of them, had roared overhead in salute while LeMay stood on the deck watching Douglas MacArthur stern

at the table where the Japanese foreign minister grimly signed the surrender. LeMay was thinking of the boys who had died to get them there, he wrote later, thinking "that if I had done a better job we might have saved a few more crews." That was the overriding message Curtis Emerson LeMay took with him from the long, bloody war: preparation. "I think the main experience that I wouldn't want to repeat is the war experience that I had," he told the same cadets who heard his opinion of killing Japanese. "There is nothing worse that I've found in life than going into battle ill- prepared or not prepared at all." To the lesson of that elemental experience he would attribute the massive work he would accomplish postwar of building up a strategic air force.

"Like many other folks" at the end of the war, he writes, he was "pretty tired." He took time to fly up and down the Japanese coast to view the results of his firebombing, then returned to his headquarters on Guam. His aide-de-camp notes on September 3 that "General LeMay spent the night at General Spaatz's house--a last stand all night poker game. The game broke up at 0600 hours the morning of the fourth." Spaatz was LeMay's boss, Carl "Tooey" Spaatz, commanding general of the Strategic Air Force in the Pacific; who won the poker game, the aide doesn't record.

At the end of August, I,LeMay): had heard through Spaatz that Washington had asked General James Doolittle, the air pioneer and Eighth Air Force commander, to lead a flight of three B-29s nonstop from Tokyo to Washington, and that Doolittle had recommended including LeMay. "Offhand,l says LeMay, "I would guess that this flight was dreamed up to demonstrate and dramatize . . . the long-range capability of the [B-]29 to the American people and to the world at large." To make the long flight-- nearly seven thousand miles--the bomb bays of the aircraft would need to be fitted with extra fuel tanks. Doolittle on Okinawa had studied the matter and concluded that six tanks would give the B-29s a gross takeoff weight of 142,800 pounds. "The trip can be made," Doolittle had messaged Spaatz by courier, provided they could find an airfield in Japan long enough and with enough bearing capacity to handle the load.

Spaatz replied on September 5 that "there are no fields in Japan suitable for take off at gross weight necessary....Flight is not feasible." Never one to take no for an answer, Doolittle flew to Guam three days later to confer with LeMay. "We got together," writes LeMay, "and talked the thing over; we examined photographs and charts. The only field which might accommodate the B-29's was Mizutani, up on the northern Japanese island of Hokkaido. ...Trouble was, we didn't have any troops in there as yet....'There was nobody of whom we could make inquires concerning the runways." LeMay sent one of his commanders to scout Hokkaido in a B-17. The Japanese naval officers at Mizutani had heard their emperor's surrender broadcast and didn't shoot him. The runways, the man reported, would do.

LeMay ordered three B-29s stripped of spare equipment and outfitted with bomb-bay tanks. In the meantime, Doolittle was called ahead to Washington. Lieutenant General Barney Giles, commander of the Central Pacific Air Forces, took over Doolittle's place in the lead planet LeMay and Brigadier General Emmett "Rosie" O'Donnell, Jr, would fly the other two. The three B-29s left Guam on Sunday, September 16, fueled at Iwo Jima and flew to Hokkaido, where they topped off their tanks with drum gasoline flown in on C-54s. "That night we slept in a barracks with three thousand polite Japanese sailors surrounding us," LeMay recalls. "No sweat." The trio of generals with their eleven-man crews took off for North America at 0600 hours on Wednesday, September 19, flew a Great Circle route northeast, crossed the International Date Line into the Western Hemisphere's Wednesday, made radio contact with Nome, reached their halfway point over Whitehorse in the Yukon at nine A.M. Eastern War Time and approached the northern Middle West late that afternoon. They had bucked headwinds most of the way that slowed their average speed to less than 250 knots and ate up their fuel. LeMay wanted to take a chance on making it to Washington, where the weather was reported marginal, but Giles and O'Donnell opted to refuel in Chicago. "I went on awhile," writes LeMay nonchalantly, "then received another Washington report. This time the weather was really marginal, and that didn't seem to make very good sense, with the small reserve of gas I'd have. I turned around and went back." From Chicago they flew on to Washington the same night and landed at National Airport just before nine to the clangor of a brass band the Air Forces had deployed for the occasion. Curtis LeMay, too, had come home.

The *Chicago Tribune* thought "the only significance" of the intercontinental nonstop flight of three US heavy)I bombers was "that it is going to be possible very soon to fly from here to Tokyo in 24 hours by commercial airliner." The Army Air Forces saw further significance in intercontinental flight. A document titled A Strategic Chart of Certain Russian and Manchurian Urban Areas had gone to Brigadier General Leslie R. Groves, the head of the atomic-bomb project, already on August 30, 1945; the document identified the important cities of the Soviet Union and Manchuria and charted their area, population, industrial capacities and target priorities. Thus Moscow was estimated to have a

population of four million, an area of 110 square miles, priorities of 1 for industry and 3 for oil and was estimated to supply 13 percent of Soviet. plane output, 43 percent of truck output, 2 percent of steel and 15 percent of copper, machine-building, oil refinery and ballbearing output. Baku produced 61 percent of the Soviet Union's oil, Gorki 45 percent of its guns, Chelvabinsk 44 percent of its zinc. The list descended to cities of only 26,000 population, but was then refined to selections of "15 key Soviet cities"--Moscow, Baku, Novosibirsk, Gorki, Sverdlovsk, Chelyabinsk, Omsk, Kuibyshev, Kazan, Saratov, Molotov, Magnitogorsk, Groznv, Stalinsk, Mishni Tagil--and "25 leading Soviet cities." An appendix estimated how many atomic bombs would be needed to destroy each city--six each for Moscow and Leningrad. A map centered on the North Pole accompanied the chart; around the world from bases in Nome; Adak, in the Aleutians; Stavanger, Norway; Bremen, Germany; Foggia, Italy; Crete; Lahore, India; and Okinawa, B-29 flight paths had been overlaid darkly like segments of radar sweeps to cover the USSR.

The plan was something of a wish list. LeMay, Giles and O'Donnell had flown one way intercontinentally and then only by loading their bomb bays with fuel tanks. The realistic range of a B-29 with a bomb load was three thousand miles. Nor were all those convenient bases available. Before the US would have a force capable realistically of striking the Soviet Union, it would need forward bases, aerial refueling or a longer-range bomber. In the autumn of 1345 none of those capabilities yet existed.

If the Soviet Union had been the United States's Second World War ally, it was also the only possible enemy to survive the general destruction with sufficient military power to challenge American hegemony. Its army occupied the eastern half of Europe. The United States believed it had a trump card in the atomic bomb, but even that advantage was a wasting asset. On September 19, while Curtis LeMay and his colleagues were en route from Hokkaido to Washington proving that atomic bombs could be delivered great distances by plane, physicist Klaus Fuchs, a member of the British Mission at Los Alamos, was finishing up delivering information about the atomic bomb by hand to Harry Gold, an American industrial chemist who was a courier for Soviet intelligence. Fuchs had been passing information on the atomic-bomb project to Soviet agents since 1941. In June he had delivered to Gold a complete description of the Fat Man plutonium implosion bomb, including detailed cross-sectional drawings, which had been sent along immediately to Moscow. Now, driving Gold up into the Santa Fe hills overlooking the New Mexican capital in the early evening, Fuchs reported on the rate of US production of U235 and plutonium and on advanced concepts for improved bomb designs. In October 1345, with Fuchs's information and information from other US and British spies, the head of Soviet foreign intelligence in Moscow was able to send to the commissar for state security newly appointed to direct the Soviet atomic-bomb program, Lavrenti Beria, a detailed plan of the plutonium implosion bomb for Soviet scientists to duplicate. The war was over. The atomic arms race had begun.
