worked in the event of a Soviet attack. (The traffic problems that would have arisen from the clash of huge mechanized armies in the great conurbations of Western Europe would, alone, have been logistical nightmares—not to speak of the chaos that would have arisen from the employment of "tac-nukes.") But given the overcentralization and inflexibility of the Soviet forces, their morale problems, and the unreliability of the Soviets' Warsaw Pact allies, NATO would certainly have given a good account of itself.

The Debate over Nuclear Weapons

Even more contentious was the proposed use of nuclear weapons both on the tactical and the strategic level. It was NATO's sense of numerical inferiority which had first impelled the Europeans in NATO to demand that the United States defend them with tactical nuclear arms. (Eisenhower supported this policy which was, however, opposed by active-duty generals such as James Gavin, one of the outstanding U.S. airborne commanders of World War II.) The reason for the numerical balance was in the main budgetary. None of the Western allies were willing to match the Warsaw Pact armies in terms of manpower, tanks, and guns; the Europeans proposed and spent more money on social welfare than on the military, as Melvyn Krauss showed conclusively in his book, How NATO Weakens the West.⁷ Initially NATO relied on its superiority in atomic weapons and on the qualitative superiority of its equipment. But these advantages evaporated as the Soviets improved their own armaments. During the 1950s, therefore, NATO began to deploy a great array of tactical nuclear weapons for direct battlefield support. (The French and British built their own nuclear deterrents—not so much to intimidate the Soviets as to assert French and British power within the Western councils. Existing treaty obligations forbade the Germans to do likewise.)

Of all the major Western powers, West Germany relied most heavily on the U.S. nuclear guarantee, and housed the largest number of battlefield nuclear projectiles on its soil. This dependency created its own psychological problems and its own peculiar ambivalence. The Germans wanted the United States to deploy tactical nuclear weapons on German soil so as to provide the maximum deterrent; the Germans looked to a "forward" defense entailing an allied stand on the Elbe River rather than on the Rhine. But at the same time German opinion—particularly left-wing opinion—dreaded the enormous concentration of atomic weapons on German soil that could turn Germany into a nuclear battlefield, and thereby spell *finis Germaniae*, an end to Germany.

Nuclear weapons, of course, could not be tested in maneuvers. In combat they would have turned any battlefield into a desert. By about 1957, NATO had deployed almost 7,000 tactical nuclear weapons in Europe. They included land mines, mortar rounds, recoilless rifle charges, air-dropped bombs, and artillery shells. Later, intermediate-range nuclear force missiles were added—at the Europeans' request, but nevertheless against bitter anti-U.S. opposition, especially from German, British, and Dutch pacifists and ecologists. Initially, the allies relied on a doctrine of massive retaliation, proclaimed by the United States in 1954, and officially adopted by NATO in 1957. Any Soviet assault would be met with the full might of the U.S. nuclear arsenal. The Soviets, however, themselves built a powerful nuclear rocket force. Allied superiority vanished, as the allies would not use their economic predominance to outbuild the Soviets at every step. In 1967 the NAC approved the Harmel Report on the Future Tasks of the alliance. The allies adopted a new doctrine of "flexible response," of measured retaliation. Missiles improved in quality and grew in quantity.

Equally contentious were the problems concerned with strategic nuclear weapons, that is to say intercontinental ballistic missiles. Initially, only the United States had the capacity to attack the Soviet

Union with nuclear bombs and destroy its main cities. As the Soviets improved their own weaponry, U.S. nuclear strategy was modified during the 1960s when Robert McNamara was secretary of defense. Deterrence of nuclear war rested on the country's assumed ability to absorb a nuclear strike and still destroy the Soviet Union. The Soviet Union, however, soon caught up to the United States. By the late 1960s, U.S. planners reconciled themselves to a doctrine aptly named MAD (for mutual assured destruction). According to prevailing orthodoxy at the time, any effort to upset this balance was destabilizing. As Stanley Kober, an arms expert, put it, "It was this logic that impelled McNamara passionately to oppose the construction of antiballistic missiles (ABMs)."8 The United States thereafter tried to limit the construction of ABMs through accords such as the 1972 Strategic Arms Limitation Treaty (SALT I). But the Kremlin never accepted the U.S. strategic assumptions; the Soviets continued to work on ABM technology on the grounds that every weapon in history had always produced a counterweapon.

The MAD doctrine had far-reaching political consequences. The NATO allies all relied on the U.S. deterrent, yet they also had understandable doubts as to whether the Americans were truly willing to sacrifice New York for London, Paris, or Hamburg. Would the Soviets and Americans not be tempted to abstain from using strategic nuclear weapons, preserving their respective homelands as nuclear sanctuaries, while destroying both Western and Eastern Europe with tactical nuclear weapons? Fortunately, the world never found out. One thing is clear, however; until the 1980s the United States never attempted to use to the full its technical and scientific superiority in a race decisively to outarm the Soviet Union. (In building intercontinental ballistic missiles [ICBMs], the United States did not even aim at parity with the Soviet Union.) In our opinion, the failure of the United States to use to the full its capability was a grave mistake—not rectified until Ronald Reagan assumed the presidency (1981–88) and reordered U.S. priorities with massive rearmament.

Alone among the powers, the United States even set up an arms control lobby within its own bureaucracy, the Arms Control and Disarmament Agency (created in 1961). Dedicated to "balanced" arms reduction, the Agency formed a counterweight to the armed services. The Agency even maintained its own program to support doctoral dissertations, and thereby linked itself to a burgeoning arms-control lobby in academia. The arms controllers came to live in a world of their own, complete with a jargon quite incomprehensible to ordinary citizens. Intelligence proved even harder to obtain in closed societies such as East Germany (where the Soviets clandestinely set up intermediate-range ballistic missiles [SS-20s], detected only after the reunification of the East and West German armies). The Soviet Union was even harder to penetrate, for the Soviets falsified not merely statistics but even their cartography. They constructed, for example, an entire archipelago of secret cities (perhaps 100 in all). These were solely devoted to military research and arms production. These cities did not appear on any maps. Access to them was severely restricted; information on their work was unavailable.

United States arms controllers obviously remained much more ignorant. They had indeed access to reports submitted by spies and to evidence provided by satellites. But the former were of necessity scanty and contradictory, and the latter incomplete, because even the best images could provide little or no evidence of what went on inside the buildings photographed by satellites.

Quarrels over Burden-Sharing

In addition, there were constant quarrels within NATO concerning the allies' respective contribution to the alliance. Scholars such as Melvyn Krauss, especially, felt that the Europeans did not fully pull their weight and spent too much on welfare and not enough on defense. This assumption rested on comparative statistics for defense