How We Learned to Love the Bomb

The atomic scientists put conscience on hold

BY SAMUEL H. DAY JR.

I was an eighteen-year-old seaman on a freighter in the South Atlantic on August 6, 1945, when the ship's radio crackled out the startling and all-but-incomprehensible news of an American superweapon that promised to bring a quick end to World War II.

It seemed logical to me, a fly-speck half a world away, and to others of my generation, that those who had unlocked the secret of the atomic bomb might also have the best notion of how to put the vast new force to good use in the postwar world.

Early events seemed to vindicate our faith.

With missionary zeal, the atomic scientists emerged from their secret laboratories to proclaim that their invention had rendered warfare obsolete—that humanity had no choice but to make peace with this unimaginably destructive power.

Their efforts to secure international control of atomic energy foundered on the parochialism of petty politicians. But the scientific community did wage a successful campaign for a civilian U.S. Atomic Energy Commission, designed to keep control of the atom out of the hands of the military.

To me, a nonscientist unschooled in nuclear arms doctrine, little happened in those first decades of the atomic age to shake my confidence in the ability of nuclear scientists to safeguard the public interest. They made clear their distaste for the hydrogen bomb; they fought for a ban on nuclear weapons testing; they provided the ammunition that shot down such unneeded weapons as the antiballistic missile and paved the way for the first strategic arms limitation treaties.

If the atomic scientists lost as often as they won, it was plainly not for want of trying. It was clear to me that right was on their side in their differences with the Pentagon.

Not until the mid-1970s, when I undertook a four-year apprenticeship in these issues as editor of the *Bulletin of the Atomic Scientists*, the international journal founded by scientists to warn of the approach of nuclear doomsday, did I begin to wonder whether my long-held confidence had been misplaced. Events have since convinced me that I was indeed wrong—that Americans made what may have been a fatal mistake when we left the shaping of the nuclear age to the people who had brought us the Bomb.

The best evidence of our present danger can be seen in today's balance of terror:

¶ Our arsenal has been built up and fine-tuned to the point where it is virtually impossible for this nation to engage in large-scale hostilities without starting a nuclear war.

¶ The growing offensive capabilities of the United States and the Soviet Union increase the possibility of nuclear war by hair-trigger accident or miscalculation.

¶ The two superpowers alone have accumulated more than enough bombs to render the planet unfit for human habitation.

And still the arms race continues. True, the world has thus far escaped nuclear war. But, looking back to 1945, it is difficult to imagine how America's destiny could have been worse managed.

What went wrong?

It was inevitable that those who had introduced the fury of the atomic bomb would take the lead in trying to bring about its control. And it was to be expected that others would defer to them. But hindsight shows that the efforts of the atomic scientists were bound to fail.

To begin with, the struggle to *prevent* a nuclear arms race had already been fought and lost before the weapon's existence was known to the world. In the spring of 1945, when the collapse of the Third Reich made it certain that the Axis powers would not be the first to develop the atomic bomb—and with the first field test of an American nuclear device still weeks away—scientists in the wartime Manhattan Project pressed for reconsideration of the program's aims.

Arguing that unilateral use of the weapon would provoke a postwar nuclear arms race with the Soviet Union (which had been excluded from the bomb project), the scientists urged that the atomic bomb not be treated as just another weapon. One suggestion was that the Japanese be invited with others to a remote Pacific isle to view its awesome powers.

These utopian hopes were stillborn in the fires of Hiroshima and Nagasaki. The Bomb's debut as a shatterer of worlds sealed the most promising exit from the arms race: nuclear disarmament. The route taken instead, with the atomic scientists pointing the way, was a process the world has come to know as "arms control"—the management of the nuclear balance of terror.

Arms control has meant accepting nuclear weapons as a fact of life and devising arrangements to

Man has at last discovered the awful secret by which he can destroy himself and all his works, but statesmen still haggle over boundaries and spheres of influence. Science has at last developed the weapon against which there is no defense, but our leaders are still seeking safety in mass armies, conscription, and the old-fashioned system of buffer states and military alliances. . . . We are afraid of the Russians, and the Russians are afraid of us. And in between, the people of Europe and Asia are afraid of both the Russians and the Americans and what they will do to the world.

Morris H. Rubin
1948

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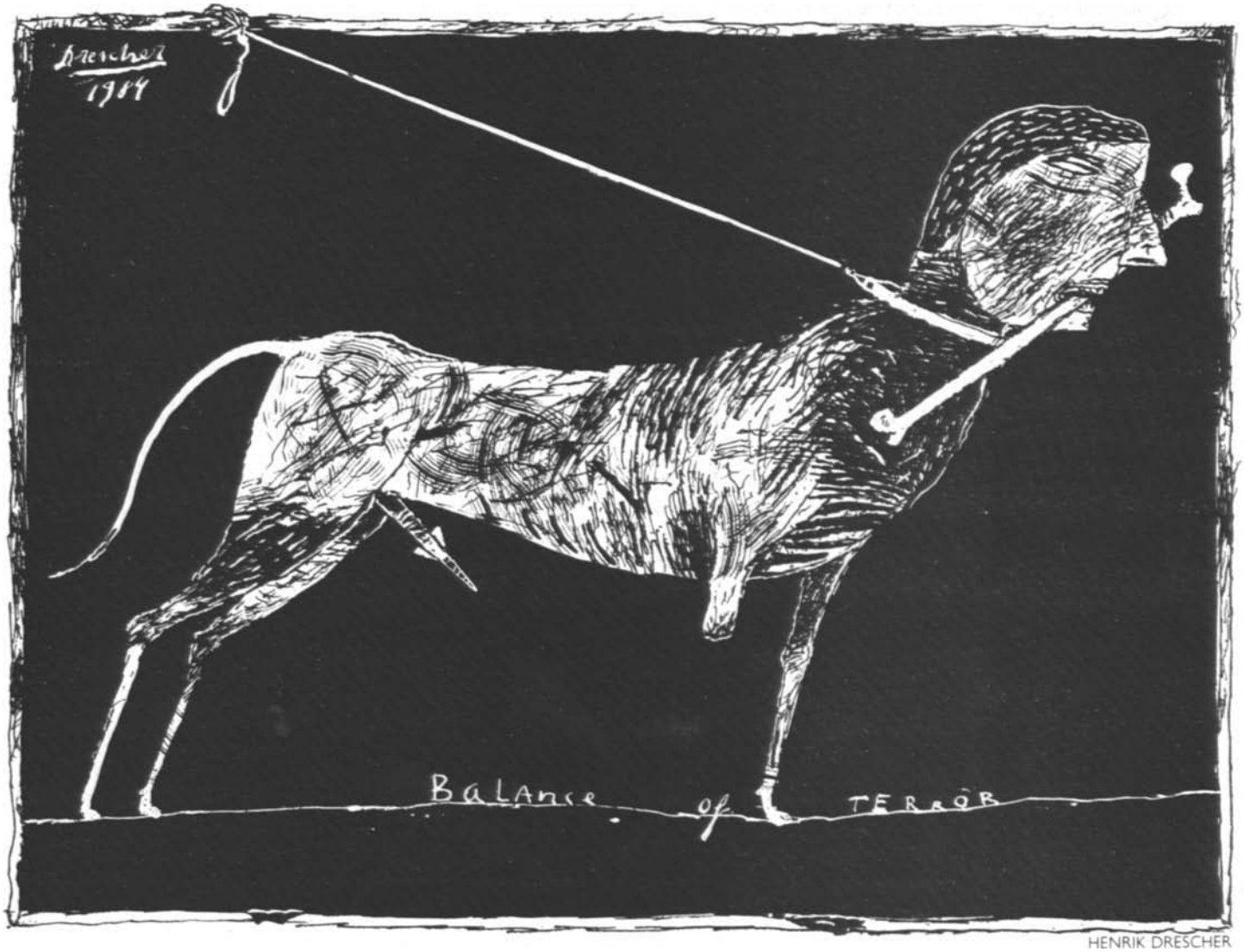

HENRIK DRESCHER

minimize the possibility of their use. In a world where nuclear weapons systems, like other aspects of technology, are subject to unending innovation and growth, it has been an attempt to channel the arms race along the lines of maximum stability.

The last lingering hopes for avoiding an arms race were destroyed in the summer of 1949, when the Soviets broke America's nuclear monopoly (long before many U.S. experts thought it possible). Nuclear weapons development became a central feature of the Cold War, particularly for the United States, which felt a greater need for the worldwide projection of massive firepower.

Nuclear arms issues in the 1950s and 1960s retreated behind a veil of secrecy and specialization that effectively excluded most of the public. Occasionally there would be rumbles from behind the scenes—about whether to build the H-bomb; about the health effects of atmospheric testing; about the spread of nuclear weapons to smaller, "less responsible" countries; about the desirability of such innovations as antiballistic missiles, multiple warhead missiles, maneuverable re-entry vehicles, super-hardened silos, and the like. But it was a debate that seemed increasingly remote.

The single apocalyptic question raised by the Bomb's appearance came, over time, to be diffused into issues of a more manageable size. The scientists were teaching us how to live with the Bomb.

Within what limits of "circular error probability" (a measurement of accuracy) did an intercontinental ballistic missile become "destabilizing"? Would the development of additional battlefield nuclear weapons (for example, "enhanced radiation warheads" for Europe) strengthen the credibility of NATO's nuclear deterrent and thus make nuclear war less likely? Or would such weapons make a holocaust more likely by eroding the "firebreak" between conventional and nuclear war? Should the Pentagon be encouraged to develop nuclear submarines, which are relatively invulnerable and therefore a good deterrent—but which are also capable of firing first-strike weapons?

These were the kinds of questions the arms control experts at Berkeley, Cornell, the Massachusetts Institute of Technology, and in the liberal Federation of American Scientists asked themselves—and wrote scholarly monographs about. When I joined the *Bulletin of the Atomic Scientists* in 1974 I needed a glossary to keep up.

While the outside world worried about Vietnam and Watergate and hoped for the best in the Middle East, the arms control experts in academia jousted urbanely with their counterparts from the State Department, the strategic think tanks, and the U.S. Arms Control and Disarmament Agency, which was

The United States "blows hot and cold with the same breath." It proclaims loudly its desire for peace. It called a convention of four nations in November 1921 to promote peace. But it makes as great preparations for more war as it can possibly make. . . . The most skillful inventors and chemists are employed making new devilish inventions that can fly, dive, poison, and annihilate on a scale never before imagined.
Editorial 1923

then on its way to becoming a subsidiary of the Pentagon.

The participants were not unmindful of the underlying cosmic issues, but these were debates from which moral judgments, sentiment, and gut feeling were carefully excluded. Management of the nuclear arms race, like piloting a commercial airplane, was not something for the untutored, the faint-hearted, or the dreamy.

The leadership of the arms control community included many whose abhorrence of nuclear war was beyond question—such as M.I.T. physicist Bernard Feld, who was torn by guilt for his part in the making of the Nagasaki bomb, and Princeton's Frank von Hippel, grandson of James Franck, the German refugee physicist who led the unsuccessful wartime move against dropping the Bomb on civilian targets. But Feld, von Hippel, and others were "pragmatic," so they accepted "nuclear deterrence"—the doctrine that, given the reality of nuclear arms, the weapons themselves must serve as the preventers of nuclear war.

In an era of dynamic industrial growth, especially in military and nuclear technologies, opposing the nuclear arms race had evolved into a highly sophisticated art of managing deterrence. It had become the turf of atomic scientists and their fellow liberals in academia and government, applying what restraints they could bring to bear on the appetites of their colleagues in the nuclear weapons establishment.

To the uninitiated, this tension looked like a contest of doves and hawks—peace-minded scientists against pro-nuclear warriors. But in reality the relationship was more congenial. A busy revolving door linked the two camps together. Some of the weapons establishment's most vocal and effective critics were also its paid consultants.

An arms control expert's stock in trade was credibility with the "defense community" and knowledge of facts in a field strictly curtailed by rules of secrecy. It was common for a critic to submit to security checks in order to gain access to the "secret restricted data" necessary for informed criticism. This further limited the circle of participants and defined the terms of debate.

In 1979, as managing editor of *The Progressive*, I took part in an exercise challenging the secrecy with which the U.S. Department of Energy shielded its hydrogen bomb program from public examination. In the furor that followed the Government's suppression of Howard Morland's article about H-bomb secrecy, none were more outraged by this defiance of the secrecy mystique than the leaders of the arms control community.

The incident was a lesson in the self-serving mutual protectionism of the nuclear weapons enterprise and its loyal opposition in the arms control community—a symbiosis which has helped propel the world toward its present fix.

An unusual combination of circumstances—epic discoveries in theoretical physics, the exigencies of a great war, unlimited access to money and the ear of power—gave atomic scientists their godlike dimensions in 1945. But their circumstances did not so readily equip them to deal with the new reality they had wrought.

Indeed, it seems clear that the physical scientists and engineers who carried out the Manhattan Project would be unlikely candidates to lead others to the sort of social transformation the atomic bomb required. For them, more than for most, the Bomb opened up opportunities for career growth, professional development, fame and fortune, and public acceptance and support. The nuclear arms race could serve only to strengthen the traditional links between science and its patrons in industry and the military.

Lacking an independent base from which to challenge the military and commercial exploitation of the atom, the atomic scientists could muster barely more than token opposition born of their personal guilt.

There was also the problem of science's own insularity and remoteness from the real word—qualities that screened out the unorthodox, the unquantifiable, the emotional, the unthinkable: a remoteness which disqualified science for decision-making in a democracy. Nevertheless, the responsibility for coping with the Bomb fell to science by default, commissioned by a preoccupied, overawed, and deferential public. In time, science's nuclear stewardship became the prerogative of a self-selected few.

In recent years, however, an outpouring of newcomers has given a fresh dimension to the struggle against the Bomb. This development has its roots in the late 1950s, when environmentalists expressed concern about the effect of radioactive fallout from weapons tests. In the 1960s, student activism challenged academic ties with the military. And widespread opposition to nuclear power in the 1970s raised questions about the military atom as well. Such intrusions into atomic weapons issues caused as much consternation in the arms control community as in the Pentagon.

Today, more multitudes are arriving not just to survey the once cloistered groves of arms control—but to stay. The field has become peopled with millions of Europeans concerned about the specter of "limited nuclear war" on their continent, with feminists who perceive the Bomb as part of their own oppression, with religiously motivated activists moved by a deep stirring in many of the world's churches.

The reinvigorated peace movement is increasingly challenging the nuclear deterrence doctrine of the arms control community.

Was it not in the name of deterrence, the peace advocates ask, that fission bombs became fusion bombs? Was it not in the name of deterrence that the Trident submarine-launched missile followed Poseidon which, in turn, followed Polaris? Was it not in the name of deterrence that the Atlas intercontinental missile gave way to Titan, which gave way to Minuteman, which gave way to Peacekeeper? Was not deterrence behind the placement of Pershing II missiles within eight minutes of Moscow?

The abolition of nuclear weapons—disarmament—has begun to rival nuclear deterrence as a rallying cry. The voices calling for disarmament are still clearly in the minority, but they are no longer timorous or defensive.

Atomic scientists may despair at the lack of sophistication of these concerned people. But maybe—just maybe—they have what it takes to pull us through. ■

They are only scientists. In their specialized ignorance, they made an important mistake. While millions of their fellow-men were killing or being killed, they were excused from the grisly work in order, they were told, to discover the secret of life. And besides, even if we had to drop a bomb or two on Germany, it would be all right because Germany was hoping to drop one on us first. When the bomb was dropped on Japan, which had no hope of dropping one on us, they realized that they had been kidded. And now they are tormented by the conviction that they have discovered the secret of death.

Milton Mayer
1946