Sakharov in His Own Words

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FEW PEOPLE in this century have been so esteemed for their original thought, humanitarian commitment, and moral courage as Andrei Sakharov. His extraordinary personal qualities continue to serve as inspiration to many millions of people throughout the world. Within the Soviet Union, particularly, Sakharov's voice is greatly missed.

Since his passing on December 14, 1989, some of the most difficult issues that will define the future of Soviet society continue to be examined and debated: economic reform and its "convergence" with market-based economies abroad, self-determination for the ethnic republics, and sweeping reforms of the governmental system, including establishment of a presidential structure—all matters that have reached deeper dimensions since his death. As a real testament to the power of his continuing presence, we have said more than once when confronted by these controversial issues that "Andrei would have objected" or "Andrei would have approved" or even "Andrei would have known."

Sakharov's sudden death shocked many people, especially his friends. Somehow we had grown accustomed to his persistent long hours and gruel-

ing work loads. We knew that his constitution was not strong, but we had hoped that the ravages of his forced exile in Gorki had not taken too big a toll.

Knowing how tirelessly he worked, we found it poignant that the epilogue of his recently published autobiography, *Memoirs*,[1] was written the day before he died. In it Sakharov makes a critical point somewhat abruptly and with characteristic directness: "The main thing is that my dear, beloved Lusia [Elena Bonner] and I are united—I have dedicated this book to her. Life goes on. We are together." There Sakharov's book ends.

Elena Bonner was his anchor, and as such, she played a pivotal role in his life. This is clearly and at times movingly depicted in Sakharov's reminiscences.

Memoirs is a book of epic proportions and obscure detail. Taken as a whole, Sakharov's story conveys a striking impression about how closely his life and times parallel the stages and developments of the first seventy-two years of the Soviet Union. In a sense, his story is both a reflection and personification of Soviet history:

Stage one: Like the young Soviet state, Sakharov lavishes unquestioning devotion on science and on the cause of national security—fixated on the next development after the atomic bomb and determined to get there in time to meet the challenge posed by the West.

Stage two: Issues of survival give way to rumblings of dissent and reevaluations of the basic set of human rights, while that which lives beneath the surface explodes into sharper and deeper conflict.

Stage three (to be described in the next book, a sequel called *From Gorki to Moscow and Beyond*[2]): *Perestroika* appears with the recognition that alienation doesn't ultimately change the human condition; only active work from within holds out promise. Like the maturing political scene in the Soviet Union itself, Andrei came to realize in his final years that more important than any protest on behalf of the human rights movement are actions to further the development of a state based on law.

In a Context of Turbulent Times

Extraordinary in its multidimensionality, the Sakharov phenomenon is virtually certain to attract the interest of generations of scholars, historians, and biographers. In sometimes exhaustive diary-like detail, Sakharov leaves an invaluable narrative that does much to explain his role within the context of the turbulent Russian record in the twentieth century.

In that sense, Sakharov's *Memoirs* is a priceless gift. It is honest, can-

did, thorough, and self-revealing. Sakharov must have had a profound feeling of responsibility to "set the record straight," not only as a witness to but as a key participant in many of the great moments in science as well as in Russian *and* world history. While his life certainly was influenced by events, he also helped shape events—many of them memorable. And while he brought his immense talent to each task he undertook, he also brought a remarkable reserve of personal courage.

Perhaps the most noteworthy of the many inner qualities that Sakharov reveals is his intense concentration and single-mindedness. His absorption with the hydrogen bomb project and later with human rights issues was so compelling that he complains, to his apparent sadness, that he did not have enough time to pursue "big science." The pages that describe his scientific work seem written with a profound sense of nostalgia. Despite his protestations, however, his brief and incomplete romance with big physics was extraordinarily fruitful, producing among many other things his invention of the magnetic confinement tokamak for controlled fusion experiments.

In addition, he was one of the first "heretics" to express serious doubts about one of the then-sacrosanct dogmas of physical science—baryon number conservation. His detailed account of how he pursued the goal of overcoming the philosophical limitations of Big Bang cosmology is impressive. These problems continued to haunt his scientific curiosity to the end of his life. Trying to overcome what he considered a major deficiency of modern cosmology—its failure to deal with the subtle interface with eternity or creation—he proposed many-sheeted models of the universe and even the reversal of time's arrow.

Independent of the final judgment by scientific purists, Sakharov's approach tells a great deal about his courage to reopen matters that are considered taboo in science. The Big Bang, he writes,

> was the moment of creation and so the question of what was before it lies beyond the limits of scientific research. However, an approach that places no limit on the scientific investigation of the material world and spacetime in my opinion is better and more fruitful, even though it leaves no room for an act of creation: The basic religious concept of the divine meaning of existence does not concern science and lies beyond its limits.

In an Ambivalent Russian Tradition

Despite his singularity as a modern scientist and thinker, Sakharov sprang from an ambivalent Russian tradition. Awakening from centuries steeped in serfdom and autocracy, nineteenth century Russia gave birth to a whole

galaxy of dazzling intellectuals: writers and composers, artists and scientists. It was from this thin yet fertile layer of Russian intelligentsia that Sakharov's family came. And it was within this culture that Andrei's childhood was enriched.

From his grandfather, Ivan Sakharov, a prominent lawyer in prerevolutionary Russia, Andrei probably inherited his respect for social awareness and humanist principles. As a young boy, Andrei was greatly impressed with a collection of essays edited by his grandfather after the abortive 1905 revolution. The essays, all advocating the abolition of capital punishment, included Leo Tolstoy's powerful contribution, "I Cannot Keep Silent." "My grandfather's work on this book was an act of conscience and, to an extent, civic courage," Sakharov writes in *Memoirs*.

Sakharov's father, Dmitri, a physics teacher in private schools, had been educated at the University of Moscow, where the great Peter Lebedev taught. Dmitri Sakharov was an accomplished but amateur pianist who had won a gold medal from the famous Gnessin Conservatory. He enjoyed walking in the Caucasus, where he became acquainted with Igor Tamm, who would later be Andrei's mentor in graduate school and in bomb work, and who went on to share the 1958 Nobel Prize in Physics. Andrei writes that his father "had an enormous effect on me." In fact, Dmitri's literary output, including a book titled *Problems in Physics*, brought him sufficient money to be independent and provided him with some fame among educators. Andrei recalls a happy childhood during which "it was taken for granted that I would study physics at the university."

Despite the creativity and generosity of his family circle, however, Andrei writes that he "grew up in an era marked by tragedy, cruelty and terror." His uncle Ivan was arrested several times in the 1930s. The family eventually got news that he had died in prison when a letter his wife, Sakharov's Aunt Zhenya, had mailed to him "was returned bearing the inscription: 'Addressee relocated to the cemetery.'" Other relatives were arrested and sent to labor camps or shot.

Some of Andrei's ancestors were clergymen, and most of his other relatives were devoutly religious. Andrei was taught to pray by his mother, but he abandoned religion as a teenager. Having scaled the heights of scientific success, he confesses in his book:

> Today, deep in my heart, I do not know where I stand on religion. I don't believe in any dogma and I dislike official churches . . . or those tainted by fanaticism and intolerance. And yet I am unable to imagine the universe and human life without some guiding principle, without a source of spiritual "warmth" that is nonmaterial and not bound by physical laws. Probably this sense of things could be called "religious."

Perhaps the most tragic aspect of the 1930s was that the nation's youth were essentially oblivious to the true scope of the events that were unfolding around them. Like many others of his generation, says Sakharov, "I was content to absorb Communist ideology without questioning it." Only later perhaps did he sense that the dogma, officialdom, and intolerance he disliked so much were features of the system he had come to serve.

When World War II broke out, deep feelings of patriotism stirred the entire country. The war delayed Sakharov's political awakening, which would have been inevitable for someone with his intellectual curiosity and training. Driven by patriotic fervor to contribute to the war effort, he rejected suggestions by his professor, Anatoli Vlasov, a pupil of Tamm and author of the well-known "Vlasov equation" in plasma physics, that he pursue graduate studies. Instead, in no time at all, Sakharov found himself at an ammunition factory that was producing bullets for the battlefront. As insignificant a move as this seemed at the time, it brought the young Sakharov for the first time into the sphere of weapons technology. Once in this orbit Sakharov remained there many years before he finally reached escape velocity.

In a Secret Weapons Center

After the war he took up postgraduate studies in theoretical physics with Tamm. A few years later, they were both sent to a secret city called "the Installation" to work on thermonuclear weapons under Igor Kurchatov. The entire operation was supervised by Lavrenti Beria, Stalin's notorious KGB chief. There Sakharov's involvement was intensified by the nature of the mission itself:

> We were encouraged to throw ourselves into our work by the fierce concentration of a single goal, and perhaps also by the proximity of the labor camp and strict regimentation. . . . The rest of the world was far, far away, somewhere beyond two barbed wire fences. . . . It would require the passage of many years and radical upheavals for new currents to affect the shift in our view of the world.

The first revelation came when Sakharov faced a personal crisis over the nuclear weapons tests. Realizing that many lives would be adversely affected by the high levels of radiation released during the tests, he could not remain silent about what he regarded as the second unnecessary test of the so-called Big Bomb, which had a yield equal to sixty megatons. With the same drive and devotion he exhibited in his scientific work, he campaigned to bring this message to the Soviet leadership. At a gala banquet of

the Central Committee Presidium, attended by prominent weapons scientists, including Sakharov, Premier Khrushchev rejected his pleas. "Leave politics to us," he declared as if proposing a toast. "We're the specialists. You make your bombs and test them and we won't interfere with you. . . . Remember, we have to conduct our policies from a position of strength. . . . Sakharov, don't try to tell us what to do or how to behave. We understand politics. I'd be a jellyfish and not chairman of the Council of Ministers if I listened to people like Sakharov!"

This may have been the genesis of Sakharov's future civil and political awareness. But Sakharov's transformation would not have been possible without the values that he harbored in a deep latent state from his rich moral upbringing. A few years later this development culminated in his famous essay, "Reflections on Progress, Peaceful Coexistence, and Intellectual Freedom."[3]

In No Sense Repentant

Those who hoped then and still do today that Sakharov would share with us his deepest feelings about the morality of his role as "father of the Soviet H-bomb" will not find them in *Memoirs*. If regret or remorse is found at all, it is not the type Dostoyevski described: no deep psychological self-analysis and self-castigation, based on the natural proclivity of the Russian soul to repent. Rather, Sakharov looks back with a sense of patriotic justification, for at that time the hydrogen-bomb was regarded as essential for national security, and Sakharov did everything he could for its success.

We will probably never discover his inner ethical impulses as the bomb's prime creator, or whether he ever worried about handing over such a mighty weapon to a totalitarian state. It might well be that after examining the complexities of human existence after World War II and during the Cold War, he deliberately decided to apply the "principle of causality" — in other words, that nothing from the past can be changed. This might explain why in the uncompromising dispute between U.S. nuclear weapons builders in the 1950s over development of the hydrogen-bomb, Sakharov obviously felt greater affinity with Edward Teller than J. Robert Oppenheimer, as embarrassing as this seemed then and even now to most of Andrei's colleagues and admirers.

Since repentance isn't touched on at all in the book, we found it impossible to know whether it was a sense of guilt that drove him later to take heroic stands against the repression of human rights or against the invasion of Afghanistan. Still, it may be that his courageous actions were simply

impelled by his rare and inspired sense of self-confidence and humanitarian mission.

What we do know, we discover in his own words in *Memoirs*:

> Looking back on my life, I can see not only actions which are a source of pride, but others which were false, cowardly, shameful, foolish, ill-advised or inspired by subconscious impulses better not to dwell on. While admitting all this, in general terms, I don't want to linger on my failings—not out of concern for my reputation, but rather from a dislike for self-flagellation and public soul-searching. Moreover, I believe that no one really learns from other people's mistakes. It's enough to learn from your own mistakes and to emulate the virtues of others. I want these memoirs to focus less on me as a person and more on what I have seen and understood (or tried to understand) during my sixty-seven years of life. . . . After all, this book is a memoir, not a confession.

Notes and References

1. A. D. Sakharov, *Memoirs*, New York: Knopf, (1990).
2. A. D. Sakharov, *Moscow and Beyond: 1986 to 1989*, New York: Knopf, 1991 and (in Russian) Moscow: Chekhov Publishing, 1990.
3. A. D. Sakharov, *Sakharov Speaks*, New York: Knopf, 1974, p. 56.