South Asia’s Distinctive Arms Race

- **Arms Control Today**

Reviewed by Michael Krepon

*Eating Grass: The Making of the Pakistani Bomb*
By Feroz H. Khan

*Managing India’s Nuclear Forces*
By Verghese Koithara

The nuclear competition between India and Pakistan breaks new ground in several ways. Extremist groups that are key actors on the subcontinent are wholly absent from the Western literature of deterrence theory. During the Cold War, spying was a critical source of nuclear know-how, but in the Asian nuclear competition, spying has taken a back seat to covert transactions and entrepreneurial demand- and supply-side networks.

The Cold War nuclear competition was never triangular, but in Asia, a third-party, China, figures prominently in the nuclear narratives of India and Pakistan. India, Pakistan, and China have fought wars against one another, wars that convinced the loser to seek nuclear weapons.

Clarifying hierarchy in this competition is difficult because Pakistan, the country with the weakest economy, takes those weapons far more seriously than India, which lags behind Pakistan in operationalizing its nuclear deterrent. China has helped Pakistan to compete with India by providing materiel and know-how for nuclear weapons and missiles, and Pakistanis have helped others in turn to acquire nuclear capabilities, most especially Abdul Qadeer Khan, the self-promoting “father” of Pakistan’s nuclear weapons program.

Clearly, the classic texts of nuclear deterrence, proliferation, and arms control from decades past are only partially applicable to southern Asia. Readers therefore will be greatly beholden to Feroz Khan and Verghese Koithara for writing two exceptional books about a nuclear competition with distinctly Asian characteristics. Khan’s *Eating Grass: The Making of the Pakistani Bomb* and Koithara’s *Managing India’s Nuclear Forces* deserve to become essential reading for specialists and worried onlookers. (Disclosure: The author of this review has had a book published by the publisher of Eating Grass and has worked closely with Khan for many years.)

Both authors have military backgrounds. Khan retired from the Pakistani army as a brigadier (the Pakistani equivalent of a brigadier general) heading up the arms control and disarmament directorate within the Strategic Plans Division (SPD) at Joint Staff Headquarters. He was present at the creation of the SPD and its efforts to operationalize Pakistan’s deterrent, improve security practices, and establish command and control arrangements. Koithara is a retired vice admiral of the Indian navy, a keen intellect and observer, and an accomplished author of two previous books. Both authors are comfortable with delving into detail as well as providing wide-angle views of the triangular strategic competition in southern Asia.

In writing his book, Khan was granted extensive access to retired Pakistani military officers and scientists, who are quoted at length. His book offers all of the strengths and some of the weaknesses of being a semiofficial account. The author pulls some punches and occasionally lapses into familiar
Pakistani criticisms of India. At the same time, he provides a treasure trove of insider accounts of Pakistan’s quest for a viable deterrent. Until now, the most voluble scientist to recount these efforts, A.Q. Khan, has been the least reliable source. A.Q. Khan was not interviewed for this book, because the author either did not seek or was not granted access to him.

New revelations are likely to provide more brushstrokes to Feroz Khan’s account, but the picture the author paints is likely to be the most informative that readers will find. He includes first-person accounts from key figures involved in the early stages of Pakistan’s programs for uranium enrichment, plutonium production and separation, missile and warhead development, and foreign procurement for these efforts. Among those interviewed are key members of Pakistan’s defense science establishment—S. N. Burney, Ishfaq Ahmad, Pervez Butt, Ishfaq Khan, Javed Arshad Mirza, Samar Mubarakmand, and Sultan Bashiruddin Mahmood (one of the Pakistani scientists who visited with Osama bin Laden and Ayman al-Zawahiri in Afghanistan in the month prior to the September 11 attacks). Among the former senior military officers Khan interviewed are Vice Chief of Army Staff K.M. Arif; Chief of Army Staff Mirza Aslam Beg; Chief of Army Staff Pervez Musharraf, who was president from 2001 to 2008; and the long-standing head of the SPD, Lieutenant General Khalid Kidwai.

Some of these men have large egos and are not always reliable witnesses. Perhaps in deference to the sensitive nature of his undertaking, Khan politely avoids taking sides over competing claims on a number of important issues while only hinting at or sidestepping reasonable conclusions. In many instances, however, the author provides sufficient material to allow readers to reach informed judgments. Consequently, Khan has produced the long-awaited companion to George Perkovich’s detailed account of India’s quest for nuclear weapons.[1]

Khan’s sympathetic treatment acknowledges some but not nearly all of the costs and mistakes associated with Pakistan’s quest for nuclear weapons and their means of delivery. His perspective will be off-putting to some readers. The story he tells is that of a heroic effort to safeguard Pakistan’s survival from a predatory India, in which “any means were justified in pursuit of a nuclear deterrent.”

That pursuit required overcoming not only externally imposed obstacles, including sanctions and export controls, but also internal constraints. The former have been well chronicled; the latter have not, until now. Internal constraints included abrupt changes in governments, sectarian purges directed at loyal Bengali and Ahmadi Muslims working on nuclear weapons-related programs, General Muhammad Zia ul-Haq’s paranoid and constraining style of oversight, and bitter internal rivalries, especially between A.Q. Khan, whose laboratory pursued uranium enrichment and liquid-fuel missiles, and Munir Ahmad Khan, the head of Pakistan’s Atomic Energy Commission (PAEC), who focused on producing plutonium and solid-fuel missiles. Munir Khan comes across as a low-profile, competent, estimable figure. A.Q. Khan appears in these pages as vain, a loose cannon, who shamed the nation when he shifted roles from being the military’s foreign procurement agent to a profit-seeking proliferator.

**Jousting Over Testing**

Eating Grass adds extraordinary detail to the rivalry between the Khan Research Laboratories (KRL) and the PAEC. No window into this rivalry was more revealing than the choice of which lab would play the lead role in carrying out Pakistan’s 1998 nuclear tests. On May 13, two days after India tested three nuclear devices, Pakistani Prime Minister Nawaz Sharif convened a Defence Coordinating Committee meeting at which A.Q. Khan and the PAEC’s Mubarakmand made their respective cases on the question of which lab would be in charge. Mubarakmand assured Sharif that his group would need only 10 days to prepare for the tests—a time line that A.Q. Khan would have been very hard-pressed to meet. Then, in Feroz Khan’s account,

[a]s arrangements were being made for the impending test, Fakhar Hashmi of KRL visited the PAEC on May 14 and requested that Samar Mubarakmand give two bombs to KRL for testing. He spoke with such authority as to give the impression that the government had chosen KRL to conduct the test.... This created much anxiety within the PAEC and its members, as many felt that the chance to prove their credentials was being stolen. To add insult to injury, A.Q. Khan purportedly wrote a letter to the prime minister in which he ridiculed the PAEC team, calling them “carpenters and...
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blacksmiths” and requesting a “joint team” of PAEC and KRL personnel be formed with A.Q. Khan at its head.

Army Chief of Staff Jehangir Karamat chose the more competent PAEC team to carry out the tests, but after vigorous protests by A.Q. Khan, he allowed him and a few members of his team to participate.

Mubarakmand told the author that A.Q. Khan wanted to push the button for the test, which created a last-minute disagreement. Major General Zulfikar Ali Khan [then head of the Pakistan military’s cell overseeing nuclear work] was told that this was not acceptable to the PAEC team that had done the hard work, so it was decided that the honor of pushing the button should be given to a junior person who had made the largest contribution in designing the trigger mechanism [Muhammad Arshad]….

At exactly 3:16, Pakistan Standard Time, Arshad prayed “All Praise be to Allah” as he pushed the button.

Here is a sampling of what else is in store for readers of Eating Grass:

- Feroz Khan does not take issue with Pakistan’s stated yields of the May 1998 tests, while acknowledging Western doubts.[2] As for their number, he writes that a total of six different designs were tested on May 28 and 30 but that the PAEC “could not have afforded to explode six bombs from its inventory, and so only two bombs were selected for tests, one for each site,” Chagai and Kharan. The four other designs would be tested at Chagai, “with triggers and natural uranium packed around the weapon.”

- Khan provides much material on the mutual benefits of strategic cooperation between Pakistan and China. He writes, “Every piece of technology that Pakistan managed to acquire would be [made] available to the Chinese for reverse engineering.” Pakistani laboratories were favored in return. Cruise missile programs that China and Pakistan now are pursuing bear a striking resemblance to U.S. cruise missiles that landed on Pakistani soil in a failed attempt to kill bin Laden at a camp in Afghanistan where he was thought to be present on August 21, 1998. In an interview with Khan, Brigadier Muhammad Anwar, director of Special Development Works, remarked, “Technologies can fall from the skies. God was being kind to Pakistan.”

- Transfers of Chinese equipment were quite substantial. Eating Grass confirms transfers of uranium hexafluoride and highly enriched uranium, as well as 40 tons of heavy water, 5,000 ring magnets, solid-fuel missiles of varying designs, turnkey production facilities, and the so-called CHIC-4 weapon design tested in 1966. On the question of how much help China provided on bomb designs, Eating Grass quotes Mubarakmand—not always a reliable witness—as saying, “They only provided subtle help—limited technical help—and only when we asked for it.” A.Q. Khan has asserted that, in return for Chinese assistance, Pakistan helped Chinese scientists with centrifuge technology, a claim that Feroz Khan seems to support.

- Earthquakes have set back the enrichment program at Kahuta, the hub of A.Q. Khan’s production complex. In September 1981, a quake measuring 6.1 on the Richter scale resulted in the crash of 4,000 centrifuges, after which KRL scientists and army engineers redesigned the centrifuge beds. “Hundreds of centrifuges” were destroyed in a subsequent quake in 1983.

- Estimates of Libya’s financial assistance to help jump-start Pakistan’s nuclear program vary from $100 million to $500 million. Zulfikar Ali Bhutto, who as early as 1965 famously declared Pakistan’s readiness to “eat grass” if necessary to acquire nuclear weapons—six years before taking over from disgraced General Yahya Khan as president—renamed Lahore’s cricket pitch Gaddafi Stadium as a token of his appreciation. The book skirts around reports of Saudi Arabia’s support.

- In “the cat and mouse game” among European suppliers, U.S. export controllers, and
Pakistan’s purchasing agents, Shafique Ahmad Butt, the PAEC’s chief European procurement officer, posted in the Pakistani embassy in Brussels, was at least as important as A.Q. Khan. Feroz Khan writes, “Although daunting, the global powers’ slow bureaucracies and lack of cooperation made victories possible.”

As for the A.Q. Khan network, the author readily acknowledges the existence of a state-sanctioned procurement operation. He concludes that the subsequent creation of a parallel, profit-making network to sell nuclear wares occurred without official sanction and that Pakistani authorities were “shocked to discover the extent and reach” of the network’s sales to Iran, Libya, and North Korea.[3] According to Feroz Khan, “The network had taken on a life of its own,” wholly due to A.Q. Khan’s greed and hubris. Was every single one of A.Q. Khan’s entrepreneurial transactions without any official sanction whatsoever? The author of this review is not entirely convinced, particularly with respect to transfers to Iran under the tenure of Chief of Army Staff Beg.

Eating Grass is likely to figure prominently in a settling of nuclear accounts within Pakistan that is already under way. A.Q. Khan was awarded his nation’s highest civilian honor, the Nishan-e-Imtiaz, not once, but twice, in 1996 and 1999, prior to his 2004 public “confession” of misdeeds extracted by Musharraf. Khan subsequently retracted that confession.

Munir Khan, characterized repeatedly by his chief rival as an impediment to progress, went publicly unrecognized until he received the Nishan-e-Imtiaz posthumously in 2012, 13 long years after his death. Now these tables have turned. As A.Q. Khan futilely throws his hat into the ring of Pakistani politics, his standing as the father of Pakistan’s bomb is plummeting. According to the account in Eating Grass, A.Q. Khan caused an “irreparable loss” to Pakistan’s international standing, while Munir Khan laid the foundations of Pakistan’s future deterrent—plutonium production and solid-fuel missiles.

Feroz Khan’s narrative is “fueled by a strategic culture filled with historic grievances, military defeats, and paranoia.” The extent of Pakistan’s pursuit of an operational deterrent is reflected in four plutonium-production reactors now in operation or under construction, a doubling of the capacity of the New Labs reprocessing facilities, and the completion of a large, commercial-scale reprocessing facility at Chashma (a facility that France was planning to build before its cancellation due to U.S. pressure) as well as the enrichment activities at Kahuta.

Indian Dysfunction

Koithara’s book tells a far different story, that of a “seriously inadequate” nuclear posture reflective of India’s deeply dysfunctional system of civil-military relations and defense procurement. In Koithara’s account, nuclear weapons and their means of delivery are not viable if they remain too long in the proprietary embrace of India’s defense scientists. He offers a scathing indictment of the Defence Research and Development Organisation (DRDO) and the Department of Atomic Energy (DAE), strategic enclaves that make “dubious technical claims and projections” and keep military operators at arm’s length.

New Delhi’s command and control system comes across as a twisted wiring diagram of political leaders, bureaucrats, defense scientists, and military commanders. It took five years after India’s 1998 tests, one limited war, and another severe crisis with Pakistan before New Delhi announced the creation, but not the details, of its National Command Authority (NCA) system—three years after Pakistan did so. In Koithara’s persuasive analysis, India’s “multi-channel control approach can become very cumbersome,” degrading “both effectiveness and accountability,” while serving to maintain the pre-eminence of the DAE and the DRDO. He maintains that India “does not have a unified command post in the capital, from which the Service Chiefs can jointly monitor and conduct conventional operations. Nor is there a national command centre from where the [Prime Minister]/NCA can control both nuclear and conventional operations conducted by the three services.” (emphasis in the original)

Relations between political leaders and the armed forces will remain “barren” as long as distracted political leaders hand far too much authority to senior civil servants. Koithara indict the Indian leadership for having a severe case of “presbyopia,” by which he means that it “can see distant
strategic issues well, but perceives operational matters at close hand only hazily.” The result is “a comfortable coexistence of strategic ambition and operational neglect.” Simply put, Koithara’s argument is that India has not been serious about its nuclear deterrent: “The country’s nuclear capability [is] seen primarily as a prop for its great power status, and only secondarily as something that enhances national security.”

Even the most astute Indian observers can have blind spots about Pakistan. Koithara argues that “deterring Pakistan was, and is, relatively easy because of India’s overwhelming conventional superiority, and Pakistan’s extreme geographic vulnerability to nuclear strikes.” Feroz Khan’s account of Pakistan’s nuclear program and the extent and trajectory of its operationalized nuclear deterrent suggest otherwise. In effect, Pakistani military planners take concepts of “proactive defense” more seriously than their Indian counterparts do. The Indian military makes plans; the Pakistani military makes plans and executes them. Koithara argues that “[d]eterring a nuclear attack by India was never the primary purpose of Pakistan’s nuclear programme. The core objective was to find a counter to India’s conventional military power.” Khan’s book offers a fuller picture: The Pakistani military’s nuclear posture does not just take away Indian options; it also adds Pakistani options below and above the conventional level.

Koithara makes a persuasive case for operationalizing India’s nuclear deterrent “by enhancing the range, reliability, robustness and survivability of its strategic missiles, as well as the operating prowess of its personnel and organizations, [rather] than by seeking to improve warhead explosive power through thermonuclear capability.” He proposes that the prime minister engage far more with military leaders, that authority be shifted from civil servants and defense scientists to the military, and that the military’s “exclusion from nuclear force management” end. In conclusion, he argues that “[t]he present approach of doing as little as possible and as late as possible will not suffice.”

Taken individually, these prescriptions appear unassailable, but their sum total could have mixed results and unintended consequences. Koithara optimistically argues that “[a]dequate operationalisation,” including the creation of a more functional command and control system, would “lead to an arsenal smaller than what many Indian strategists consider necessary today.”

Koithara proposes that New Delhi continue to play its deterrent “softly.” How soft would this deterrent become once the apparatus surrounding it is hardened? Pakistan’s nuclear enclave, which has taken poorly implemented Indian declarations of intent so seriously, is likely to react even more poorly to steps to operationalize India’s deterrent effectively.

Here lies the basic dilemma undergirding Koithara’s fine book: Most of his recommendations are long overdue, but they could well reinforce an already extensive nuclear competition in southern Asia. More weapons for India will not advance the cause of deterrence stability if New Delhi’s approach to command and control issues and its civil-military relations remain dysfunctional. Conversely, a more serious approach toward command and control and operationalization matters is likely to result in a larger force structure. Koithara assumes otherwise. He asserts that greater coherence will reduce pressure for excessive requirements. Much rests on this questionable assumption.

**Current Trends**

One of the myths of the Cold War nuclear competition was that as assured second-strike capabilities grew, anxieties would diminish. Pakistan is again disproving this notion: its worries have grown alongside its nuclear arsenal because nuclear weapons cannot fix its severe economic and domestic weaknesses. India has adopted a more relaxed view toward nuclear weapons, but its arsenal is also growing, albeit at a slower pace, at least for now. China, like India, places economic growth above all other national security objectives, but Beijing also is modernizing its nuclear forces.

This triangular competition is adding new dimensions. India, Pakistan, and China are moving new nuclear capabilities to sea. Cruise missiles of U.S. and Russian lineage are entering the arsenals of all three countries. Pakistan has embraced the logic of possessing short-range nuclear delivery systems to counter Indian conventional military advantages, with India likely to follow in due course, a subject that is barely discussed in the two books under review.
Fissile material production capabilities are growing significantly. Official lines of strategic dialogue between the competitors have been lacking in substance and unworthy of current and prospective regional nuclear developments. Stabilization by means of treaties, as was the case during the Cold War, is not in the cards for southern Asia. Consequently, deterrence stability is likely to become shakier with more-diversified and larger nuclear arsenals unless economic connectivity grows and new nuclear risk-reduction measures are negotiated.

In short, the nuclear competition between India and Pakistan is likely to be a worrisome part of the international landscape for quite a while. Readers who want expert assessments of the history, current state, and future prospects of this competition can do no better than to read these two excellent books.

Michael Krepon is co-founder of the Stimson Center. His most recent books are Better Safe Than Sorry: The Ironies of Living With the Bomb (2009) and Rummaging in Shoeboxes for Stories About the Bomb, the Nuclear Age and Arms Control (2011).

ENDNOTES


2. Pakistan announced a combined yield of 40 kilotons associated with the May 28 tests; Western estimates are in the range of six to 12 kilotons. Khan credits the May 30 test with a yield of 18 to 20 kilotons; Western estimates generally have been in the range of one to six kilotons.

3. There is no mention in the book of possible sales to India, which Joshua Pollack has said was the Khan network’s fourth customer. See Joshua Pollack, “The Secret Treachery of A.Q. Khan,” Playboy, January/February 2012.

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