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Plumbing the secret Underground Great Wall.

By BRET STEPHENS

Shortly after the end of the Cold War, an American defense official named Phillip Karber traveled to Russia as an advance man for a visit by former Secretary of Defense Frank Carlucci. "We were meeting with Russian generals," Mr. Karber recalls, "and we met a three-star who told us they had 40,000 warheads, not the 20,000 we thought they had." It was a stunning disclosure. At a time when legions of CIA analysts, Pentagon war-gamers and arms-control specialists devoted entire careers to estimating the size of the Soviet arsenal, the U.S. had missed the real figure by a factor of two.

Mr. Karber, who has worked for administrations and senior congressional leaders of both parties and now heads the Asian Arms Control Project at Georgetown University, tells the story as a preface to describing his most recent work. In 2008, he was commissioned by the Pentagon's Defense Threat Reduction Agency—which deals with everything from arms-control verification to nuclear detection and forensics—to look into a mysterious Chinese project known as the "Underground Great Wall." The investigation would lead Mr. Karber to question long-held assumptions about the size—and the purpose—of China's ultra-secret nuclear arsenal.

The agency's interest in the subject had been piqued following the devastating May 12 earthquake that year in Sichuan province: Along with ordinary rescue teams, Beijing had deployed thousands of radiation specialists belonging to the Second Artillery Corps, the branch of the People's Liberation Army responsible for the country's strategic missile forces, including most of its nuclear weapons.



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China has built 3,000 miles of military tunnels.

The involvement of the Second Artillery wasn't entirely surprising, since Sichuan is home to key nuclear installations, including the Chinese version of Los Alamos. More interesting were reports of hillsides collapsing to expose huge quantities of shattered concrete. Speculation arose that a

significant portion of China's nuclear arsenal, held in underground tunnels and depots, may have been lost in the quake.

Mr. Karber set about trying to learn more with the aid of a team of students using satellite imagery, Chinese-language sources and other materials—all of them publicly available if rarely noticed in the West. History also helped.

Tunneling has been a part of Chinese military culture for nearly 2,000 years. It was a particular obsession of Mao Zedong, who dug a vast underground city in Beijing and in the late 1960s ordered the building of the so-called Third-Line Defense in central China to withstand a feared Russian nuclear attack. The gargantuan project included an underground nuclear reactor, warhead storage facilities and bunkers for China's first generation of ballistic nuclear missiles.

China's tunnel-digging mania did not end with Mao's death. If anything, it intensified. In December 2009, as part of the celebrations marking the 60th anniversary of the People's Republic, the PLA announced to great fanfare that the Second Artillery Corps has built a cumulative total of 3,000 miles of tunnels—half of them during the last 15 years.

"If you started in New Hampshire," notes Mr. Karber by way of reference, "and went to Chicago, then Dallas, then Tijuana, that would be about 3,000 miles."

Why would the Second Artillery be intent on so much tunneling? There are, after all, other ways of securing a nuclear arsenal. And even with a labor force as vast and as cheap as China's, the cost of these tunnels—well-built, well-lit, paved, high-ceilinged and averaging six miles in length—is immense.

The extent of the tunneling was also hard to square with the supposedly small size of the Chinese nuclear arsenal, which is commonly believed to be in the range of 240-400 warheads. "So they've built 10 miles of tunnel for every warhead?" Mr. Karber recalls asking himself. "That doesn't make sense; it's kind of overkill."

That thought prompted Mr. Karber to take a closer look at Western estimates of China's arsenal. In the late 1960s, the U.S. military projected that China would be able to field 435 warheads by 1973. A straight-line extrapolation based on that assumption would suggest that China would have somewhere in the order of 3,000 warheads today. In 1984 the Defense Intelligence Agency estimated that China would have 818 warheads by 1994 and more than 1,000 today. More recent reports in the Chinese media put the figure somewhere between 2,350 and 3,500, with an average annual warhead production of 200 over the last decade. By contrast, estimates by the Natural Resources Defense Council suggest that China's arsenal peaked by about 1980 and has been more-or-less flat ever since.

How accurate are any of these figures? Without on-site inspections, it's impossible to say for sure: As a report by the Council on Foreign Relations noted a decade ago, "China stands out as the least transparent by far of all the nuclear-weapon states."

Yet despite the opacity, the consensus view among China watchers is to go with the low estimates. Hans Kristensen of the Federation of American Scientists insists the Chinese are "not in the business of trying to reach [nuclear] parity with the U.S. or Russia. They're not hiding hundreds and hundreds of missiles in these tunnels." The tunnels, he adds, are China's "typical game of hiding what they have and protecting their relatively limited missile force."

Mr. Karber isn't persuaded. "One kilometer of tunneling is approximately equal to the cost of four or five nuclear weapons and certainly several delivery systems," he notes. Why would China devote such vast resources to building a protective network of tunnels, while devoting comparatively few to the weapons the tunnels are meant to protect?

Then too, there is the question of whether Beijing's declared nuclear policies are believable. Beijing insists that it has a "no first use" policy. Yet in 2005, PLA Maj. Gen. Zhu Chengdu told *The Wall Street Journal* that China would launch nuclear attacks on "hundreds of, or two hundreds" of American cities if the U.S. came to Taiwan's aid in the event of a war with the mainland.

Beijing also claims to adhere to a policy of maintaining a small nuclear force, described by one Chinese general as a "minimum means of reprisal." Here too Mr. Karber has his doubts.

China is in the midst of a major nuclear modernization effort that includes building a new generation of intercontinental ballistic missiles reportedly capable of delivering multiple warheads. It fields an estimated force of nearly 1,300 tactical and theater missile systems that can be tipped with either a nuclear or a conventional warhead—the ambiguity itself giving China immense strategic leverage in the event of war.

Mr. Karber also suspects China may have up to five missiles for every one of its mobile launcher vehicles. If so, those "reloads" would go far to explain the discrepancy between China's observed number of mobile launchers—one of the reasons for thinking China has a relatively small number of missiles—and Mr. Karber's suspicions about the true size of its arsenal.

What purpose would a large and presumably invulnerable Chinese arsenal serve? For decades, nuclear experts have understood that the key to "winning" a nuclear exchange is to have an effective second-strike capability, which in turn requires both a sizable and survivable force. The Second Artillery itself suggested some ideas when it announced the completion of the Underground Great Wall in 2009, claiming it gave China the ability to "withstand nuclear strikes"; that "Taiwan independence can despair"; and that China no longer had cause to be "afraid of a decisive battle with the United States."

Mr. Kristensen writes this off as standard regime propaganda, noting that "the Chinese are known for putting out incorrect information as a form of information warfare." Yet it's unclear why the U.S. arms-control community seems happy to accept Beijing's claims about its nuclear doctrine at face value while dismissing the giant network of tunnels as the equivalent of a Chinese Potemkin village.

Mr. Karber has some thoughts on that score. The low estimate of China's arsenal, he believes, originally derived from an estimate of delivery vehicles—meaning missiles, mobile launchers, airplanes and submarines—that could be observed. After that, he suspects, "lack of new evidence and inertia seem to have kept the numbers flat."

He also fears an institutional bias in favor of the low numbers. Within the U.S. government, "the Pentagon and the intelligence community have been criticized over the years for 'worst case projections,' so now everyone avoids them like the plague."

Outside of government, "arms-control experts have tried hard to downplay the PLA strategic effort in order to head off 'unnecessary' U.S. reaction." China, after all, is supposed to be the role model for the kind of arsenal a "responsible" nuclear power should have, and a China with an arsenal much larger than commonly believed would be the ultimate inconvenient truth for those pushing for steeper nuclear cuts.

Mr. Karber is a careful, deliberate man, who favors negotiated arms-control with China. In speaking to me, he repeatedly insists that his research is far from definitive and cannot substitute for a real intelligence-gathering effort. He also admits that it's possible—if only just—that the Chinese have led with the tunnels in order to stock them later with weapons, launchers and missiles.

Yet for all of the uncertainties, there is little doubt about the tunnels themselves, which the Pentagon acknowledged for the first time this year in its annual report on the Chinese military. And nobody who cares about the nuclear balance can look away from the mountain of evidence Mr. Karber has compiled, much less fail to consider what it might imply. That goes especially for the Obama administration, which has moved forward with an ambitious agenda of deep nuclear cuts with Russia as if China's arsenal barely existed.

That assumption needs urgent reconsideration. The alternative is for China, steeped in a 2,500 year military tradition of concealment, deception and surprise, to announce—at a time and in a manner of its choosing—its supremacy in a field that we have foolishly abandoned to our dreams.

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