GREAT PROLETARIAN CULTURAL REVOLUTION

By comparison with the terrifying but almost unknown horrors of the agrarian revolution and the Great Leap Forward, the effect of the "Great Proletarian Cultural Revolution" seems almost modest. Estimates vary greatly for the number of dead: most authors cite figures between 400,000 and 1 million ... .

The "Cultural Revolution Group" [formed at an extraordinary meeting of the Politburo of the Chinese Communist Party on 16 May 1966 and reporting directly to Mao Zedong] decided that the peasantry, the army, and scientific research (which for the most part centered upon nuclear weapons) should remain unaffected [by the Cultural Revolution] ... .

There was never a clear aim to eliminate a whole section of the population. Even intellectuals, who were particularly affected at the outset, were not for long the prime targets of persecutions. Moreover, the persecutors often came from their own ranks....

...For the whole period of the Cultural Revolution, between 3 and 4 million of the 18 million cadres were imprisoned, as were 400,000 soldiers, despite banning of Red Guards in the PLA. Among intellectuals, 142,000 teachers, 53,000 scientists and technicians, 500 teachers of medicine, and 2,600 artists and writers were persecuted, and many of them were killed or committed suicide. These latter figures, which are not entirely reliable are those used in the trial of the Gang of Four in 1981 ... .

S. Courtois et al. (1999, 513, 514, 524, 795)

Technology Commission. (The Academy would be transferred back to the Seventh Ministry of Machine Building in the early 1970s.) As part of the PLA, the Academy was exempt from the political campaign of "speaking freely, airing views fully, holding great debates, and writing big-character wall posters [*dazibao*]." Instead, the staff went through "positive education."

Military Protection

This was the time when many leading specialists were attacked as "reactionary academic authorities," and engineers and scientists were often branded "bourgeois intellectuals." Premier Zhou Enlai ordered the extension of the state's personal protection from attack and persecution to leading specialists in the missile program, including Tsien. Military control of the Seventh Ministry of Machine Building and its affiliates protected other important research, development, and industrial assets.

Long March Space Launcher

The Long March space launcher was a three-stage rocket with the first two stages using liquid-propellant engines and with a solid-propellant third stage. The vehicle was closely linked to the development of the intermediate-range ballistic missiles and multistage rockets initiated by the *Academy of Launch Vehicle Technology* in 1965. Successful demonstration of the first two-stage IRBM on 30 January 1970 paved a way for launch of the first Chinese satellite.

The *Institute of Rocket Engine Technology* designed the engines of the Long March's first two stages based on UDMH and nitric acid as propellants. The first stage YF-2A had four engines. The second stage YF-3 had one engine that was ignited at altitude 60 km (37 miles) and operated under near vacuum conditions. The *Academy of Rocket Motor Technology* developed the third-stage motor that was 4 m (13 ft) long with diameter 77 cm (30 in.) and carried 1800 kg (4000 lb)