

# How the Soviet Union left the U.S.A. behind

by Susan Welsh

Dr. George H. Heilmeier, until recently the Director of the U.S. Advanced Research Projects Agency (ARPA, the coordinator of military research and development), laid out in a 1976 address the U.S. government's attitude toward the relationship between America's strategic "deterrent" and the nation's economy. According to Dr. Heilmeier, a future war would be so short that "forces in being are more important than force potential and deterrence more important than inherent capability. The manufacturing base that was critical to the United States in past wars will be of little use to us in future conflicts that are likely to be short, violent, and dominated by advanced technology. There simply won't be any time to mobilize an entire nation and its manufacturing base. There will be no time for bond drives, gearing up, mobilization, and determined national production."

This statement succinctly captures the fundamental difference between the military-economic philosophy currently governing the United States, and the philosophy of the Soviet Union. In the U.S., the stress on "deterrence" to the exclusion of in-depth war-fighting capability, has led to the erosion of every aspect of American military and economic power. In virtually every domain, the other superpower—which 60 years ago was a backward, "third world" nation—is now ahead.

This happened because the Soviet leadership built the country's economy as well as its armed forces *first and foremost* to survive and win should war threaten the continued existence of the Soviet state. This policy originated with Lenin, and has continued into the nuclear age, whereas in the U.S. the post-war period has seen an abandonment of war-fighting doctrine.

The Soviets insist that the cornerstone of their policy is scientific research and development.

Soviet President Leonid Brezhnev, in a typical statement of this approach declared:

One can state without exaggeration that it is precisely in ... the area of scientific-technical progress that we find today one of the principal arenas in the historical competition between the two systems. For our party this makes further intensive development of science and technology not only a central economic task but an important political task as well. At the present stage, problems of scientific and technical progress are acquiring, quite frankly, decisive importance.

(quoted in *Voennaya Mysl*, 1969)

Every facet of the Soviet armed forces has developed according to this policy. Today an estimated one-quarter of total defense expenditures go to research and development (11 percent for the United States, where one-half of the total budget goes to pay the wages and benefits of the All-Volunteer Force). The Soviet Union now has more than twice the number of scientists and engineers employed in R and D as the United States, whereas as recently as 1968 the United States was still ahead. The U.S.A.'s self-consoling belief that the Soviets are "good on quantity but poor on quality" compared to the United States is now exposed as a complete illusion (see accompanying article by Dr. Steven Bardwell). In the area of ICBMs alone, the Soviets have deployed six major new ICBMs since 1967, whereas the U.S. has developed only one, the Minuteman III, deployed in 1970.

Rejecting the view that a "strategic" deterrent—long-range missiles and bombers—is adequate, the Soviet Union maintains its total troop strengths at twice the U.S. level, and keeps its conventional forces strong in the belief that even with modern thermonuclear weapons, it

is ultimately the ground forces and the country's economic power which determine which side can win a nuclear war. The Soviets believe that the "general forces" will continue to do combat in ABC-saturated territory after nuclear bombardment, until one side emerges victorious. In addition, the Soviet Union is estimated to spend twice the U.S. rate on weapons procurement and military construction, a trend which has given the Soviets a six to one advantage in tank production; three to one in infantry fighting vehicles; eight to one in artillery; and two to one in tactical aircraft.

In basic industry, the trend is the same. The Soviet Union has consistently opted for the highest possible rate of capital investment, even when that meant a drain away from agriculture and consumer goods, the two most important problem areas in the economy. The U.S.S.R. is now the world's largest producer of machine tools (double the U.S. rate), of tractors, of steel, oil and numerous other products which are essential to the country's ability to fight a war. Other key branches of the economy which bear directly on military posture include the following:

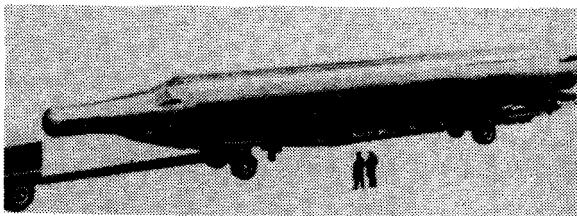
\* **Nuclear Energy.** The Soviet Union currently runs about 5 percent of its industry on nuclear power, and intends to raise this figure to 30 percent by the year 2000. Under conditions where extraction of oil in Siberia is becoming more difficult and expensive, the socialist countries' economic community, the Council for Mutual Economic Assistance (CMEA), voted up a resolution in June, 1979 to multiply nuclear power 15 fold by 1990.

The Soviet program for the development of controlled thermonuclear fusion in several areas is well in advance of the U.S. equivalent, even though the very expensive research has not received adequate funding in the Soviet Union either, in the view of scientists engaged in the program. They confide that a full-scale international effort will be required to significantly accelerate the fusion power timetable.

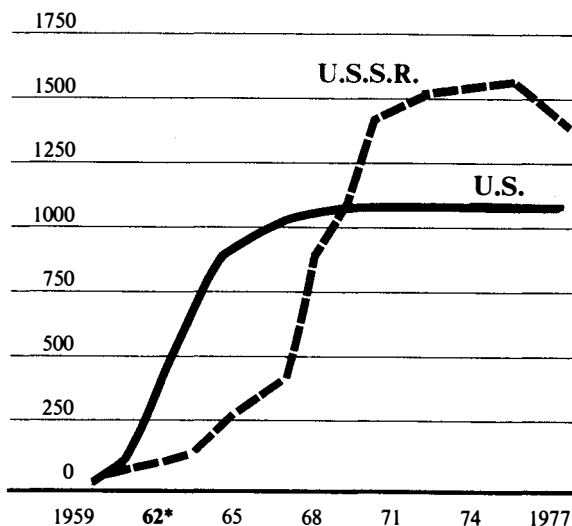
\* **Space Program.** Whereas the U.S. space exploration program is for all intents and purposes defunct, the Soviets are forging ahead, sending men into space regularly, setting new records in endurance and conducting a wide range of experiments which will make future expansion of the program possible.

\* **Merchant Marine.** Since the early 1960s, the Soviets have quadrupled the size of their merchant fleet, surpassing the United States and making it the 5th largest fleet in the world. According to *Jane's Fighting Ships*, "the U.S.S.R. regards her merchant fleet not only as an essential element of the national economy at all times,

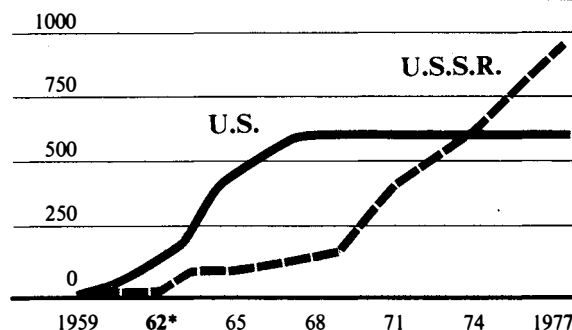
## Ballistic missiles: the U.S.S.R. closes the gap



*Total ICBMs*



*Total SLBMs*



\* Cuban missile crisis

but as a vital fourth arm of defense in emergency. Moreover, the Soviet Navy draws freely from the mercantile pool when it is in the interest of the fighting services."

### The defense burden

The undeniable achievements of the Soviet economy have not, however, eliminated the problems which Khrushchev grappled with in his day—the inefficiency of Soviet agriculture and the need to raise consumer goods production to improve the standard of living of the population. The burden of the high defense investment on an economy which in overall size is considerably smaller than the U.S. economy is the most significant factor forcing "trade-offs" among branches seemingly equal in their need for investment. Another factor is the labor shortage, which will get worse in the coming decade.

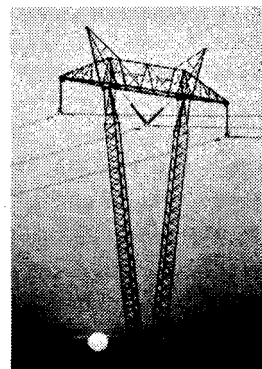
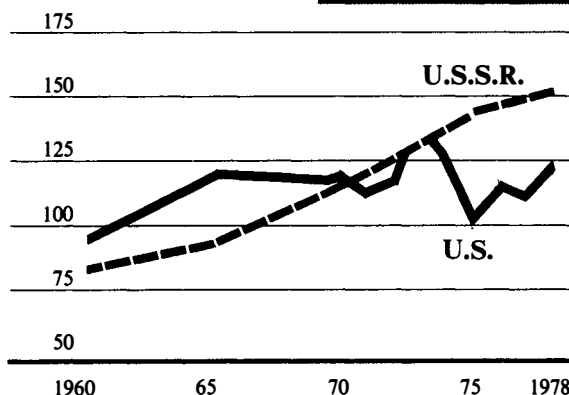
Growth targets in the current, Tenth Five-Year Plan (1976-80) were sharply curtailed in many areas, including a projected growth rate in capital investment of only 26 percent, compared to the 42 percent achieved in the previous Five-Year Plan. Even these reduced targets are not being met in all too many areas, and Soviet President Brezhnev delivered a speech Nov. 27, 1979 to a plenum of the party Central Committee attacking individual ministries and officials by name, in unprecedentedly harsh fashion, for their failures to implement targets. The harvest this year was a disastrously low 179 million metric tons.

Brezhnev and his factional allies in the Soviet Union are attempting to deal with the situation by forcing more rapid qualitative transformations of the economy through science and technology, instead of the old reliance on simply "more" labor and capital. Academician E.P. Velikhov, a leader in the Soviet fusion program and in military R and D, told a journalist from *Fusion* magazine last summer that the burden of the military on the economy means that "a simply linear expansion" is now nearly impossible. Siberian development projects, energy development, improved transport—none of these tasks can be accomplished without a shift into qualitatively new modes of development, he said.

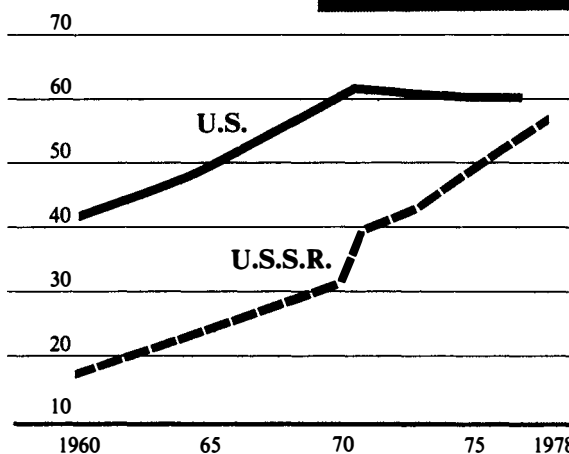
The shift toward nuclear energy typifies this approach, which is also reflected in the Tenth Five-Year Plan's insistence on improved quality of production. Said Brezhnev in his speech to the plenum, "The structure of industrial production is being improved by the accelerated development of those industries which determine technical progress. Whereas the volume of industrial production in 1979 compared with 1975 increased by 20 percent, engineering and metal-working will grow by 40



**Raw steel production**  
(million metric tons)



**Energy production**  
(quads)



percent, and the chemical and petrochemical industry by 25 percent.”

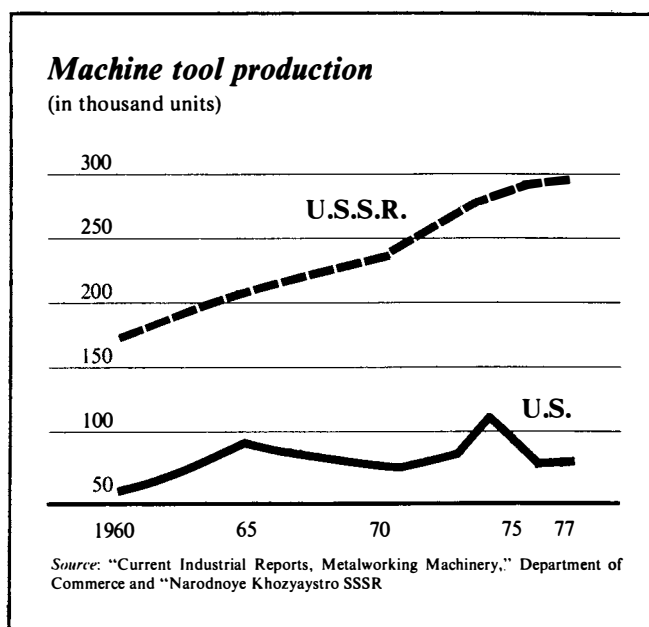
Acceleration of technical progress was also the goal of a Central Committee resolution issued in August, 1979, “On Improving Planning and Enhancing the Effect of the Economic Mechanism on Raising Efficiency of Production and Quality of Work.” The resolution designated special funds for R and D in each ministry, and instructed the Academy of Sciences and other bodies to “work out a comprehensive program of scientific and technological progress for 20 years.”

This policy of the Brezhnev faction is coupled with a continuing readiness for detente with the West, despite the deterioration of the international situation during the past several months.

The opponents of Brezhnev’s “intensive growth” domestic policy are in many cases the same as the opponents of Soviet participation in a new detente-based international monetary system oriented toward Third World development. These are the Soviet advocates of “systems analysis,” the supporters of the Club of Rome, the anti-nuclear environmentalists. But these people are still a minor force in the U.S.S.R.; and the appointment this week of G. Marchuk, head of the Siberian Academy of Sciences, to be the new Deputy Prime Minister and head of the State Committee for Science and Technology, is a signal that the Brezhnev faction is firmly in the saddle. Marchuk’s branch of the Academy has been a pioneer in scientific progress, and includes the famous Novosibirsk center of advanced scientific research. Marchuk was named to replace V.I. Kirillin, by-passing Kirillin’s deputy D. Gvishiani, a leading Soviet proponents of “systems analysis” and the Club of Rome.

\* **Civil Defense.** In the last decade, the Soviets have developed an extensive civil defense training program intended to ensure the survival of the majority of the Soviet population and industry in case of nuclear war. The program is coequal in status with the five major military services, and its chief, Army General A. Altunin, is a Deputy Minister of Defense and four-star general. The program includes plans for city evacuation, fall-out shelters, and the protection of industrial equipment. Urban planning has proceeded so as to restrict population density, dispersing industries throughout the country, reinforcing weak structures, burying utility stations and conduits for power and water.

Expert opinion in the U.S. varies greatly concerning the effectiveness of such measures. At one end of the spectrum, a special study conducted in 1976 by the Boeing Corporation concluded that 98 percent of the Soviet population would survive a nuclear war, presuming that the U.S.S.R. launched a first strike and—unlikely but possible—that the U.S. responded with a second



strike only *after* Soviet nuclear warheads had hit their targets!

Nevertheless, it can be confidently concluded that the Soviet Union would not be spending all the money and effort on their program if the U.S. Congress Joint Committee on Defense Production were right in another scenario, concluding that “there appears to be little warrant for the belief that the Soviet Union could survive even modest yet carefully configured nuclear attack in any but the most primitive economic circumstances. In short, vulnerability analysis of the Soviet economy discloses no practical means of reducing the number of critical targets to a level so low that it would have any effect on the basic premises of nuclear deterrence . . . . The committee could see no reason to revise earlier U.S. estimates of the unfavorable cost-benefit ratio of industrial defense.” (*Civil Preparedness Review*, April 1977).

### Political battles behind Soviet policy

The U.S.S.R.’s commitment to a war-fighting military doctrine and the economic development policy underpinning it has not gone unchallenged in Soviet history, and still has highly-placed opponents today. The closest the Soviet Union ever came to professing a doctrine of “deterrence” comparable to Washington’s was under N.S. Khrushchev, who was toppled from power in 1964 by the current Brezhnev-Kosygin leadership.

Khrushchev, never known for sophistication of political or military ideas, was targeted by anti-science oligarch Bertrand Russell and others to be the transmission belt for British fabian-liberal influence into the Soviet Union. (Russell’s “ban-the-bomb” correspondence with

Khrushchev during the Cuban missile crisis is a well-known.)

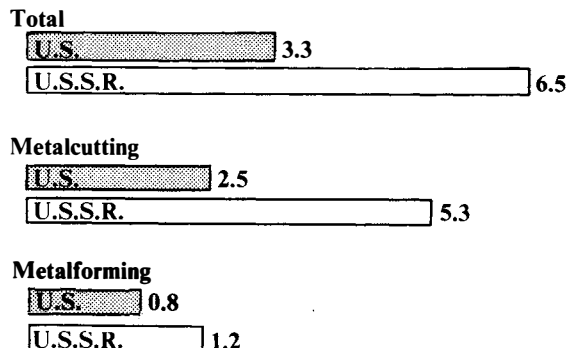
Khrushchev instituted a number of “reforms” which brought strong opposition from the Soviet Communist Party, earning him the accusation of “hare-brained scheming” after his demise. One of these reforms was his effort to cut the number of ground troops in 1960, and again in 1963. The first attempt was accompanied by an announcement that war was unlikely in a nuclear age, since the aggressor country would not be able to attain victory (the basic premise of “deterrence”). The Soviet military responded to the troop cut and the Party chief’s emphasis on missile deterrence with scarcely-concealed outrage. One military newspaper attacked those who think the next war would be “a push-button war, which would be conducted without mass armies.”

Khrushchev’s “hare-brained” efforts to deal with problems in the economy and particularly in agriculture brought him up against those he called the “steel-eaters”—heavy industry and the defense establishment. He abolished the centralized economic ministries in 1957, replacing them with regional councils; and in 1962 he provoked general opprobrium by splitting the Party into two independent parts, one for agriculture and one for industry, resulting in unprecedented chaos.

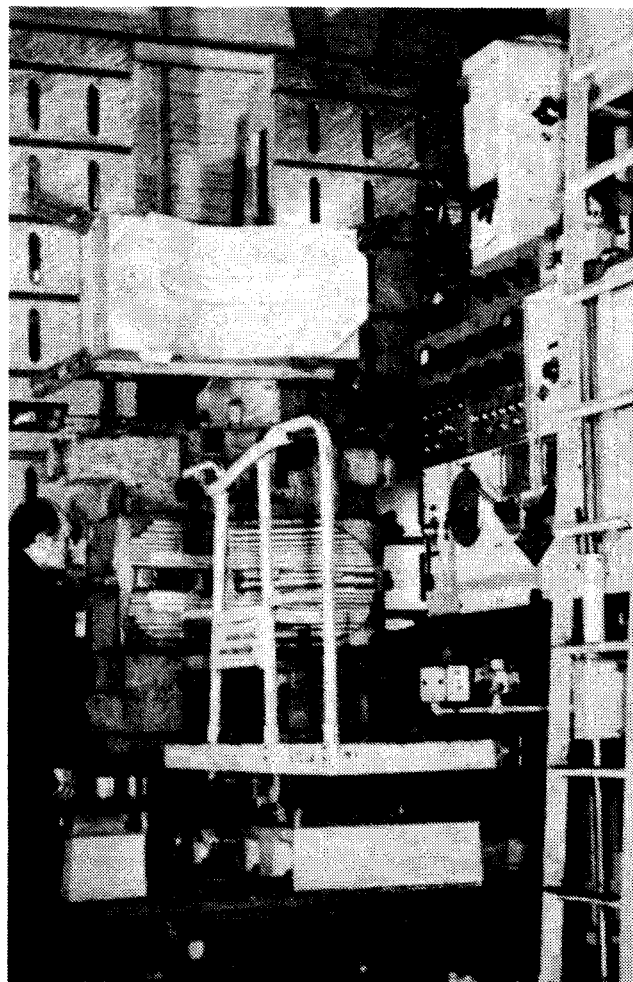
The fact that under Khrushchev the Soviet Union initiated the programs which would later make possible its rapid expansion in ICBMs and naval power may indicate that the leader’s seeming support for strategic “deterrence” was merely making the best propagandistically of a situation in which the U.S.S.R. did not yet possess anything near a war-winning capability vis-à-vis the United States. More likely, the vital R and D programs were being determined not by Khrushchev directly but by people like Admiral S. Gorshkov, head of the Soviet Navy, and “steel-eater” D. Ustinov, today’s Defense Minister who was then in charge of defense industrial production. In any event, the Cuban missile crisis of 1962 marked a decisive shift toward a rapid escalation of Soviet military capabilities (reaching levels of ICBM production of one launcher per day during 1966-67, after Khrushchev’s fall. See graph). This shift toward a war-fighting doctrine was reflected in the principal Soviet military text, Marshal V.D. Sokolovskii’s *Military Strategy*. The first edition of the anthology, published in 1962, contained a formulation converging on “deterrence”: “The greater the stockpiling of weapons of mass destruction, the greater becomes the conviction that it is impossible to use them. Thus, the growth of nuclear missile power is inversely proportional to the possibility of its use.” This line was omitted from the second edition—issued just over a year later, after the Cuban missile crisis—and all subsequent editions.

### Machine tool inventory

(1978, million units)



Source: Dr. James Grant, “Soviet Machine Tools: Logging Technology and Rising Imports,” in *Soviet Economy in a Time of Change*, Vol. 1, Joint Economic Committee of the U.S. Congress, 1979.



A Soviet numerical-miller machine-tool.