fuel (plutonium or uranium-233), which can then be extracted from the steam and fabricated into fuel rods for nuclear-fission electric power reactors.

Pacer is a most prolific breeder of fissile fuel. Enough fissile fuel can be bred from fusion-generated neutrons so that 12 to 20 times more energy is created in the form of fission reactor fuel than the immediate energy released by the H-bomb detonation.

Strategic implications

It is commonly thought that there are more than enough nuclear weapons in today's arsenals (currently estimated at a total of 100,000 strategic and tactical warheads) to destroy the world several times over. In reality, however, when one considers alternative applications of nuclear devices such as antimissile "flak," military excavation and construction with clean H-bombs, and explosive power supplies for beam weapons, the possession of greatly enhanced nuclear-weapons stockpiles could be of immense strategic significance. The chief cost and production constraint on nuclear weapons production is that of procuring the fissile fuel needed in all types of warheads.

With conventional technology, such as uranium diffusion plants and nuclear breeding reactors, major increases in production of weapons materials would take at least several years to develop and could not be done in complete secrecy. A Pacer system for solely breeding fissile materials would not suffer from these drawbacks and could only be definitely observed—through seismic measurements of the continuous thud of Pacer underground explosions—once production had actually begun.

The key factor determining just how efficient and economic Pacer could be as a fissile-material breeder is the question of how large an H-bomb could be detonated within a 575-foot-diameter cavity without destroying it. The original U.S. projection of 20 kilotons was an extremely conservative estimate based on a limited number of underground explosions and theoretical calculations. Some experts believed that explosions as large as 200 kilotons could be achieved. These larger devices would incur no increased economic or fissile-fuel investment and would effect a tenfold increase in the amount of fissile fuel generated.

In order to determine whether use of these more efficient, larger detonations is feasible, actual tests would have to be carried out. And in fact, the Soviet Union has carried out a number of underground explosions near this 200-kiloton level (which is slightly above the maximum levels allowed by the Nuclear Test Ban Treaty, 150 kilotons) in Azgir, a region of the Soviet Union that contains natural salt-dome formations.

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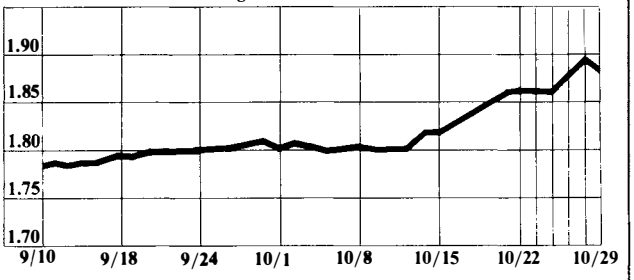
Currency Rates

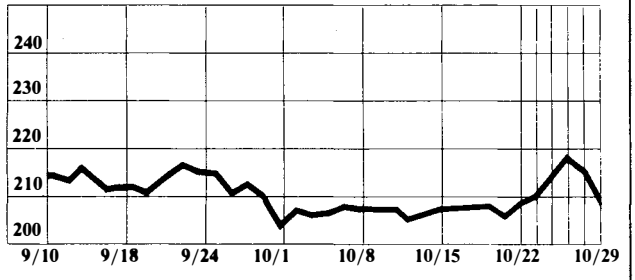
The dollar in deutschemarks

New York late afternoon fixing



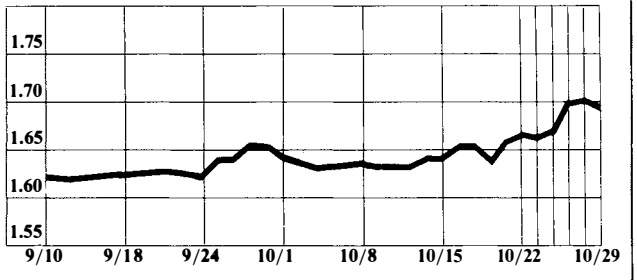
The dollar in yen

New York late afternoon fixing



The dollar in Swiss francs

New York late afternoon fixing



The British pound in dollars

New York late afternoon fixing