

Useless Secrecy and the World Bomb Balance

This week a prominent American scientist is scheduled to appear before an audience of military officers at the War College in Washington, D.C., and lay out the details of the nation's nuclear arsenal. He is on no Government payroll. He has access to no classified information on his pet subject.

"After I'm done," says physicist Ralph E. Lapp, "I'm going to tell them, 'By the way, nothing you've heard today is classified.' And that will make their jaws drop."

As a leading critic of what he calls useless secrecy on the part of the Atomic Energy Commission, Dr. Lapp has for years insisted that the carefully guarded information on the nation's nuclear might could be computed by any interested, competent person, using available data.

The U.S. nuclear stockpile is a case in point. When the AEC revealed recently that it could produce enough uranium each year for 10,000 Hiroshima-sized bombs, it was announcing a figure within 10 percent of the estimates Dr. Lapp had been making for years. Yet those same estimates had been denounced as "fantastic" by those who had access to secret data Dr. Lapp didn't have.

China's nuclear capacity is another example of how security holds back rational analysis of the future, says Dr. Lapp. A magazine article of his in May 1965, analyzing the Chinese potential, "first made the Department of Defense think seriously about China," he claims. "They later let a contract to a private research firm to analyze the situation, but I don't know how far they've gone. It took the project director nine months to get cleared."

Dr. Lapp's estimates are based on careful computation, identifying important indicators, and considerable detective work. In determining the size of the nuclear stockpile, he used three main sources: the amount of uranium ore procured by the AEC, the electricity used by the huge separation plants, and the operating costs of those plants—all available figures.

Natural uranium consists mostly of a heavy isotope, U-238, which can't be used in fission-type bombs, and less than one percent of the minutely lighter U-235, which can. For weapons, the uranium has to be enriched so that 90 percent is U-235. To do this, the uranium is turned into a gas and forced through filters so fine that a pin-prick represents a gaping hole. The lighter isotope moves through the filter a little faster, and so can be separated. The high enrichment needed for weapons requires the gas to be passed through

the filters many times.

The electric power necessary to keep the three U.S. gaseous diffusion plants running ranges from two million to six million kilowatts. These plants have to run continuously—if they shut down momentarily, it takes months to re-establish the proper equilibrium pressures in the filter systems, says Dr. Lapp.

By keeping a running graph of the power consumed, Dr. Lapp estimated the amount of U-235 that had been produced at 910 tons by 1967. He also



Dr. Lapp

calculated the same stockpile based on the uranium procured—this estimate came to 1,080 tons.

When the AEC released figures on the precise amount of U-235 it could produce at various power consumption levels—figures that had been closely guarded up to then—Dr. Lapp checked his chart of the total power consumed over the years and computed the output. It came to 970 tons of 90 percent enriched uranium.

"This," he says, "is more than adequate to fabricate 100,000 Hiroshima-size bombs," each with an explosive power of about 20,000 tons of TNT.

Enriched uranium can also be used as a trigger for much larger hydrogen bombs—and these explosives bring down the cost tremendously. According to AEC figures, a 20 kiloton fission bomb costs \$380,000. For another \$100,000, a 200 kiloton fusion bomb can be made. A two megaton hydrogen bomb cost only \$600,000.

These facts are behind Dr. Lapp's conviction that China will "Go-H," as he puts it, and build up a quick arsenal of hydrogen bombs. "I don't think

people realize how cheap it is to build H-bombs," he says. They cost less than a hundredth of the same yield in fission bombs, he declares.

Using the same ratio of power consumed to U-235 produced, Dr. Lapp estimates that China, with a national power output of 5,000 megawatts—compared to the U.S. output of some 250,000 megawatts—can produce one-third of a ton of 90 percent U-235 a year. This will give China 100 H-bombs by 1970, he says.

With China thermonuclear, the world political situation has turned into what he calls three-party deterrence. And the outcome of that kind of a game, he says, is practically unpredictable.

HOSPITAL COSTS

A Lavish 'Happening'

Patient costs are likely to climb to \$100 a day in some hospitals in the next few years. In the shadow of that threat, and at the direction of President Johnson, leaders in the medical community met with representatives of labor and the public last week in Washington in a working conference on medical costs.

How to lower the costs without impairing the quality was the task assigned by the President in his message to Congress last Feb. 28. He asked for the nation's best thinking on the urgent problem. Health, Education and Welfare Secretary, John W. Gardner, issued the call; 250 conferees responded.

A labor relations vice president from the Pacific Coast and a Harvard economics professor tackled the problem as though it could be solved; most of the speakers pointed out that no blueprints were being drawn up.

If bad planning is keeping a lot of hospital beds vacant and jacking up costs, something ought to be done to get rid of the hospitals or the beds, Harvard's Dr. Jerome B. Pollack indicated.

"In New York State, I recently studied the cost of hospital care. This study, I believe, first pointed to the imminence of \$100 average daily costs," he said.

"We found that poor planning in the past had permitted excessive beds and whole hospitals to exist that should never have been built in the first place or long ago discarded. The general hospital beds were vacant between one-fifth and one-fourth of the time at prodigious cost."

The new health system America is putting together is a lavish "happening" that could turn into a masterpiece or a bust, depending on the way the show is organized. Perhaps the system has been too lavish and stylish, Dr. Pollack