

# Chances for Space War--- And Peace

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Man's capability for full-blown space warfare—with mammoth bombs in orbit and clashing interceptor satellites—is frighteningly near.

But so, in the minds of many experts, is a workable, enforceable disarmament treaty that would truly neutralize outer space and save it for peaceful science.

The men who make the rockets but rarely write the peace treaties are meeting here in Los Angeles. The question of war and peace in space is strong in their minds.

They are members of the American Rocket Society. Nearly 2000 of them are attending the society's 17th annual meeting here in the center of America's space industry.

## DR. HIBBS

Dr. Albert R. Hibbs, physicist and designer of scientific spacecraft, was one of the group's major speakers. He is now chief of the Jet Propulsion Laboratory's arms control and disarmament group. He often functions as a sort of cerebral liaison man between the U. S. Arms Control and Disarmament Agency and the U. S. Space Agency.

The first task of space disarmament, Dr. Hibbs says, is to assess realistically what space weapons can be and what they can do.

## ORBIT

For example, consider nuclear bombs in orbit:

A single Russian rocket can now orbit at least a 90 megaton thermo-nuclear weapon.

From a low orbit such bombs could be fired downward for precision attacks on cities.

If rocket power could be boosted to handle 100 megatons or more—and that time is approaching—then they could be exploded at orbital altitude of 150 miles or so and incinerate a large part of the North American continent.

An orbiting arsenal of thermal, high-yield bombs would be primarily of propaganda value, Hibbs said, but the frightening prospect poses problems.

## THREAT

"Suppose," Hibbs asks, "Soviets launch the big bombs into orbit and then announce publicly that unless the U.S. pulls out of Laos or somewhere else, at once, all the Russian bombs will explode over America and burn us up."

"There's no secrecy here. There's the question of response and countermeasures. Countermeasures might include disarming the orbital bombs while they are out in space by neutralizing them or by inducing them to explode prematurely.

It is also argued here that an orbiting bomb system in American hands could conceivably deter an enemy attack.

If hundreds of thousands were in random orbits, no enemy could hope to find them all.

## RETALIATION

So, if an enemy did attempt to launch a war from space or elsewhere, this nation would have an arsenal intact in orbit despite any attack, to launch in retaliation.

The deterrence would come, presumably, from our announced readiness to use such a force if challenged.

One of our orbiting defense systems is called SPAD, for "Satellite Protection for Area Defense." It would consist of 2000 to 3000 satellites, each armed with one to six interceptor missiles that could attack enemy missiles during early flight.

Fortunately for the arms controllers, these systems still exist only on paper and carry a price tag roughly estimated at \$15 billion or more.

## DIFFICULTIES

The technical difficulties of orbital bombs, their cost, the dangers they pose because of unreliability, and the limited nature of the missions they might perform all argue against them.

These factors may very well make a treaty outlawing them acceptable to both Russia and America.

"A really substantial treaty banning bombs in orbit is quite possible within the next two years," Hibbs says.

Any such treaty, however, must exclude reconnaissance satellites of all kinds, the rocketeers believe. These are the types like MIDAS, which may or may not be able to detect enemy missile launches by infra-red sensory devices; and SAMOS, a photo-

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graphic space craft designed to supplant the U-2.

## RUSS VIEW

"We certainly cannot afford to give up developing our space reconnaissance capability," Hibbs says. "And I imagine the Soviets would want both sides to use reconnaissance satellites.

"From their point of view it minimizes foreign pressures to accept inspections at the launch pad, and it cuts down on U-2 flights and Central Intelligence Agency activity."

Satellites designed to inspect other satellites pose difficult technological problems. For example, without elaborate X-ray photographic equipment it is impossible to tell whether a satellite contains an H-bomb or a space mouse.

Interceptor satellites would have a hard job telling decoy weapons from real ones, and what about intercepting a satellite bomb that is triggered to explode when any interceptor approaches it? But these problems can certainly be solved, Hibbs says.

"Machines and men will fly in reconnaissance spacecraft for a long time," Hibbs maintains. "They're the most practical way to inspect and enforce space disarmament agreements."