

Unmanned Missions

During the past two years, I have been joined by many other experienced practitioners of space exploration in my long-held position that the U. S. should shift (back) to primary emphasis on unmanned, commandable spacecraft launched by unmanned vehicles.

A standard and, by now, trite assertion by opponents of this view is that space science and applications would be supported at only a very low level by the American public if manned flights were not the centerpiece and focal point of the national effort. This assertion is an opinion, not a theorem. The Air Force clearly disagrees. I believe that the assertion is also false as applied to the civil sector.

Indeed, I submit that the converse assertion strikes closer to the truth, viz., that manned space flight would enjoy relatively little public support if it were a purely adventuresome sport with no scientific or applicational purposes and if its full costs were recognized.

Many individuals declare that a balance between the two conflicting points of view is the only sustainable position. Such a soothing position is easy to take and, at least superficially, appears to contain elements of wisdom.

But the question remains as to what constitutes an appropriate balance of resources. Is it 50/50, 25/75, 10/90, 90/10, 75/25, or what?

It is clear that nothing significant is really settled by a nonspecific declaration in favor of a balanced program. The quantitative issue remains unresolved.

One may note that during 1986, the USSR conducted 90 space launches, of which only one carried a human crew. All were accomplished with expendable launch vehicles.

Is this the proper balance for the U. S.?

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Cockpit Crew Coordination

There is always more than one solution to any problem. Mr. Westerfield's is the supervisor of flying (AW&ST Nov. 2, p. 100).

His letter reminded me of an incident in 1985 at Howard AFB, Republic of Panama.

I was the C-130 mission commander. My office overlooked the Howard AFB runway. One day an A-7 aircraft slid down the runway on its belly, sparks flying. No gear.

The pilot missed it; the tower controller missed it, and the supervisor of flying missed it.

Another solution is a recurrent ground school course to educate all crews on the importance of air crew and checklist discipline. Are there any more solutions?

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Agile Falcon

Official concern that USAF may be locking itself prematurely into the General Dynamics Agile Falcon proposal may have some basis in fact (AW&ST Nov. 2, p. 21).

The Japanese FS-X variant of the F-16C seems to have many of the advantages of the Agile Falcon, such as the increased wing area and improved engines and avionics, but also incorporates control-configured and stealth technologies.

Before USAF gets too set on Agile Falcon, it ought to consider the comparable or even possibly superior FS-X. At least, General Dynamics could propose a revised Agile Falcon with some of the additional FS-X features.

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Soviet Technology

The letter by Nick Leggett on Soviet radar technology reminded me of the following conversation overheard at a recent international communications symposium (AW&ST Oct. 19, p. 140):

Chinese scientist: We were using telephones almost 2,000 years ago.

Russian scientist: How do you know?

CS: We have been exploring some ruins that date back to that period and have found very long copper wires that were obviously used as telephone lines.

RS: That is very good. However, by that time we were already into radio telephony.

CS: Great. But how do you know?

RS: Well, we were into ruins that are even older and there were no wires of any kind.

CS: Ah so.

Interpretation of foreign technology certainly depends a little upon what you like to believe about the other side. I completely agree with Mr. Leggett that we should be careful not to dismiss Russian technology, because there should be no doubt that their people are quite capable too. In a recent article comparing the state of the art in U. S. and Russian space technology, the author made a very perceptive (I think) comment that the greatest sophistication achieved by the Russians in this area was their ability to restrain sophistication. That must be true of their military technology also.

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Soviet Observatory

The note in the Oct. 5 issue (p. 27) on the Relikt-2 observatory to be launched by the Soviet Union was very dismaying. The observatory, designed to conduct a background radiation survey of the sky, was described as being unusual as it was to be placed in a Lagrange point.

As a member of the National Space Society, itself the product of a merger absorbing

the L-5 Society, it seems to me that such a momentous announcement should not have passed with so little attention.

The five Lagrange points about the Earth and Moon are the most important sites for midterm space development and settlement. The occupation of this first Lagrange point leaves only four for other spacefaring powers.

Staking out the high ground in space colonization need not require the kind of Sputnik breakout that inspires awe and a strong response. Instead, a "creep out" from parity to strategic superiority can begin with such obscure, and incremental, advances.

The article characterizes the mission as "unusual." The occupation of the first Lagrange point, while the U. S. debates an endless set of space station configurations, makes the Relikt-2 mission not an unusual one, but rather a harbinger of the shape of the future.

It is a rich irony that the first annexation of extraterrestrial territory will be made as part of International Space Year.

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Moscow Space Forum

Your editorial on the "Moscow Space Forum" was food for thought and worry (Oct. 12, p. 15).

For Mr. Keller of NASA to make the statement that "the responsibility for generating public support lay with such organizations as the Planetary Society" is bewildering to say the least. If the Planetary Society has its way, we will go to Mars hand-in-hand with the Russians.

The Russians? In 1939 the Russians went hand-in-hand with the Nazis into Poland and divided up the country. Then while the Nazis were busy in the west, the Russians crushed Finland and seized Estonia, Latvia and Lithuania.

They became our "ally" only when the Nazis turned on them. More recently, they have been committing genocide in Afghanistan. Also, not too long ago, they shot down a civil airliner that had strayed off course, murdering 240 innocent people.

Glasnost or not, if we go to Mars with the Russians, we better take along a lot of concrete so we can build a wall across the base to protect ourselves.

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