BETWEEN PREHISTORY AND THE STARS – DEADLY LITTER

Bill Rathje on space junk

I have been trawling eBay for the last month or so looking for old camera equipment for my Metamedia Lab – part of our explorations of media metarialities – getting away from the notion that new media are somehow immaterial data.

Came across an item that I had forgotten – # 3819626634 (ended Jun-10-04 07:06:10 PDT) – Lunar Spacecraft Project. Bids (starting at $6.2 million) invited for a commercial lunar spaceflight – crashing 10kg of cargo into the moon's surface.

OK – a publicity stunt that did grab some media attention for the Nevada company. (Sponsorship from Final Frontier Jerky – Beefjerky.com – slogan – "50000 years ago mankind made meat into jerky. Between prehistory and the stars.") And there was a suggestion that this would be a spectacular way of scattering someone's ashes.

Adding to the littering of space.

Archaeologists specialize in the study of garbage. And Bill Rathje is the father of garbology. Garbage past, present and future. I asked him to comment.

The 1902 French satire A Trip to the Moon (a classic by Georges Melies) ends with one world's best known cinematic images. The 14 minute short doesn't show humanity directly shooting itself in the foot; instead, it shows astronomers building a humongous cannon and shooting a rocket ship at the smiling "woman in the moon". The film ends with the disturbing image of the now-useless rocket lodged in the moon's left eye as the face around it writhes in shock and pain.

What was outlandish fantasy at the turn of the century became fact in less than sixty years. In the late

1950s, both the former Soviet Union and the United States successfully launched a series of “impact” missions that crashed “probes” into the lunar surface and created the some of the first space litter.

Despite our hard-won acumen in satellite and manned space flight technologies, we have continued to smash probes into the moon. As recently as July 31, 1999, the 354 pound Lunar Prospector hit the moon’s surface going 3,800 mph to see how large a plume of dust and vapor it would kick up (It was hoped that the height and content of the plume would provide evidence of water on the moon, but no plume was sighted.)

Not to be outdone, space novice China recently announced that within five years it will launch its own “moon probe” satellite. That may seem to be adding less debris to the lunar surface, but after a few months or years in orbit, China?s probe will become useless space litter and eventually follow the familiar impact trajectory.

The European Space Agency sent a similar probe to the moon in September 2003, while dropping off two communication satellites along the way.

But litter on and around the moon is only a tiny fraction of the problem of human-made litter in space. As any archaeologist can tell you, every creature marks new territory in its own special way – humans do their marking with litter, items that no longer serve a purpose to those who put them there.

“Marking” litter is currently an especially acute problem in space. When we earthlings began our space exploration, we followed an age-old tradition. Pioneers and explorers have always done whatever it takes to get there the first time and have given little or no thought to what they leave behind or no thought at all to cleaning up after themselves. Note that the Mars record to date is that two out of every three lander missions have produced nothing but space junk!

All of us have been indoctrinated to believe that litter of any kind should be avoided, prevented, or cleaned up. In our hearts, we all know that’s true. Appropriately, while l was writing this piece, I was attending an awards banquet of the New Jersey Clean Communities Council, where litter is taken very seriously and litter cleanups abound.

And so it should be. Litter is a sign of a lack of concern that goes far beyond environmental indifference, and its presence continually instigates and reinforces such attitudes. In fact, Professor Malcolm Sparrow, at Harvard's Kennedy School of Management, has argued that "grime" is linked to "crime" – grime being a kind of usual suspect that tells anyone in the vicinity that other types of crime are tolerated.

When, however, standard roadside litter is compared to the discard of official EPA hazardous wastes – lead-acid car batteries or industrial canisters full of used solvents or nuclear wastes – many of us also believe that the litter we're used to seeing takes a secondary place.

But what happens to this view when items common in refuse and litter – such as french fries or plastic bags – get frozen solid and hit you or anything else at a speed of 20,000 feet per second! If you are traveling in the same direction at the same speed, the litter will just float along side; but if you are going at some other angle, and especially if you are moving in the opposite direction, it could shoot right through

you! OUCH !

Forty years ago, in 1964, just seven years after basket ball-sized Spudnik became the first human-made object to be shot into Earth orbit, James White wrote “Deadly Litter”. White used this science fiction short story to illustrate how, in his view, within 150 years human-made space junk would become exactly that deadly litter! – and littering in space would become the “dirtiest crime in the books”.

My prescience is so far best exemplified by a chunk of an exploded Ariane rocket that hit a French satellite in 1996 and reduced the orbiter to space junk smithereens. White was clearly writing in the far-sighted mode of A Trip to the Moon, but as prescient as he was, he may have underestimated the incredible threat that supersonic speed space litter will pose in just the next few decades.

At this point, the US and the Russians may have become successful enough to be concerned about not creating more space junk, but what about the new kids on the block trying to prove themselves? The lunar and other space programs of the European Space Agency and China

are the major new entrants at present, but there are still more in the wings.

As if this isn't enough, space, especially around Earth, as endless as it seems, is being rapidly populated by entrepreneurs: Celestis launches satellites carrying "cremains" (cremated remains of earthlings, the first sent into orbit from the Canary Islands on April 21, 1997) [Link: Taphophilia]; French scientist Jean-Marc Philippe created non-profit KEO to orbit a UNESCO-approved 220 lb. "time capsule" satellite around Earth for 50,000 years [Link: "Saving the now for later"]; and, of course, the X Prize competition (encouraged by the multi-million dollar price tags that the mega-rich have been willing to pay to become space tourists) offers $10 million to the first private company to launch a passenger vehicle into low orbit [X-Prize latest press release August 5 2004]. Who with a spirit of adventure could resist such a challenge?

No wonder Sergei Kulik, head of the international division of the Russian Aviation and Space Agency, said in 2001, "In the middle of the century the contamination may be so big that a kind of a cascade

effect could appear, a collision between the space debris particles creating more and more (collisions).” That could eventually mean, he told Reuters, “there will be no possibility of flying in space at all.” [Link]

What space junk and all its hazards point to is the importance of breaking the intimate and age-old relationship between exploration and litter. Teaching ourselves and our children to think about litter WHEN WE MAKE PLANS and BEFORE we do anything is one of the most important lessons for all of us to learn. If we had followed that simple strategy in just the recent past, we might not have generated all of the difficult-to-recycle packaging we have, and, even more importantly, all of the nuclear waste we don’t want but can’t find any acceptable place to bury, and even worry about moving because of corroding containers even if we could find an acceptable burial locale.

Just a few months ago, I was sure that the space junk situation couldn’t get any worse. Silly me.

As Michael has just said, In May of this year, Orbital Development of Carson City, Nevada initiated its

“MoonCrash Project”. The company will provide a lunar spacecraft that can be packed with 22 pounds of whatever any client paying $6 million desires. A Russian aerospace contractor’s commercial launch vehicle will lob the craft and cargo to the moon where it will crash hopefully somewhere near where the client wants.

Gregory Nemitz, president of Orbital Development, said, “The MoonCrash Project would probably be attractive to some bored rich guy, who is tired of playing with his radio-controlled model airplanes.” Then he added that no one should worry about litter because, after all, the moon is only a large expanse of vacant rock anyway. Until I read this news release, I didn’t realize how engrained our “right” and “need” to litter are.

Whao! Surely, the Woman in the Moon must be writhing once again!

Believe it or not, I believe that Mr. Nemitz and MoonCrash should be brought to the attention of as many people as possible. There is nothing better than an attitude like Mr. Nemitz’s and a project like MoonCrash to dramatize the critical need to fund both litter

abatement and full-fledged environmental education programs in our schools!

Connections: archaeology, junk, remains (human and other), senses of the future (real and fantastical).